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COMMUNICATIONS.

The Pathology of Inflammation.

BY GEO. E. HUNT, D.D.S., INDIANAPOLIS, IND.

Read before the Tri State Dental Meeting, June 15th, 1895.

For purposes of description the process of inflammation may be divided into—First: Changes in the blood-vessels and circulation. Second: Exudation of fluid and of blood corpuscles from the vessels. Third: Changes in the inflamed tissues. This division is made merely to facilitate consideration of the subject and it must not be imagined that these changes occur successively, for such is not the case; they are all taking place at the same time.

The changes occurring in the blood-vessels and circulation are marked. We have first dilation of the vessels in the affected area, with increased rapidity of blood flow. Dilatation occurs primarily in the elastic arterioles. The veins ranking next in elasticity are soon proportionally distended, while the non-elastic capillaries are dilated but little.

Irritation of a sensory nerve will produce dilation of the arterioles in the area to which the nerve is distributed, by reflex action. The arterioles being dilated and the blood pressure remaining the same, a larger quantity of blood will pass through them. On account of their non-elastic walls the capillaries connecting with these arterioles do not dilate proportionally; consequently, blood pressure in them is increased and acceleration of blood flow through them results.

After about an hour of this accelerated blood flow, the next stage, that of retardation of blood flow, is reached, the vessels continuing dilated. Retardation is due to certain changes in the inner or endothelial wall of the smaller veins, which cause it to become sticky. This degenerative change also affects the cement substance binding together the edges of the endothelial cells constituting the vessel wall, deteriorating it and rendering it more penetrable.

The increased friction produced by this sticky condition of the vessel wall is soon evidenced by the gradual flowing of the blood current and the tendency of the leucocytes to adhere as they roll and tumble along the periphery of the lumen. It is probable that this morbid condition embraces also the inner wall of the arterioles, inasmuch as it is histologically identical with the corresponding wall in the veins, but the adhesion of leucocytes is greater in the veins than in the arteries because the blood is not driven in successive waves in the former and the flow is not so intermittingly swift. The valves in the veins also assist in causing arrest of the leucocytes. The red corpuscles, being heavier, are swept along in the axial stream and are not yet affected.

Some of the white corpuscles will stick for a moment, but will be released by the flow of the current and will pass on through the irritated region to the normal tissue beyond. Others will be arrested and remain sticking to the vessel wall. Still others will roll up against these adherent ones and before they can work their way around will be caught and retained, and in a short time the wall of the veins in the affected region will be found lined with adherent leucocytes. Other corpuscles adhere to these, and the lumen of the vein is gradually occluded—the blood current becoming proportionally slower. This process extends back into the capillaries also.

As long as there is a channel of sufficient caliber in the veins the red corpuscles pass on through, but when that is closed to them, or so nearly so that only a few may find a way, the others mass themselves in the capillaries and arterioles, causing these latter vessels to look as though filled with a red injection mass.

There are a few leucocytes mixed with the red corpuscles, about the usual proportion as found in the normal blood.

But before the mass of red corpuscles in the capillaries and arterioles become too great to prohibit it, we have the stage of oscillation in these vessels; this occurs when the veins have so nearly occluded that the flow is materially arrested. Then, at each heart impulse, the blood surges into the arterioles and capillaries leading to the affected veins, and not being able to pass through, flows back during diastole. Systole sends another wave up to the affected region which again recedes when the force of the heart beat has expended itself.

Following oscillation is the natural sequence of this progressive occlusion—stasis. In stasis the blood mass is stationary in the vessels, although it may remain fluid for two or three days. During stasis the capillary wall, being unnourished, gradually perishes—starves to death. When this occurs thrombosis or coagulation of the blood takes place.

This, in brief, constitutes the changes occurring in the blood and circulation.

Coincident with dilation and increased blood flow, we find the normal exudation of fluid from the vessels much increased in quantity and changed in quality—becoming much more albuminous and consequently more coagulable. At first the lymphatics, by extra efforts, are able to remove it, but in a short time it is poured out in such quantities that those vessels are overtaxed and the fluid accumulates in the connective tissue spaces, swelling the parts.

Now, if a small vein or capillary is closely observed, leucocytes are seen passing through the vessel wall, at first scatteringly, but eventually in great numbers. They pass out through small openings in the cement substance which joins together the edges of the endothelial plates constituting the vessel wall. During inflammation, while the vessels are distended, this cement substance gives way in the shape of minute holes or stigma, which gradually become larger and are known as stomata.

The leucocytes pass out through the stomata mainly by virtue of their amoeboid movements. At first a small, button-like

elevation may be seen on the outside of the vessel wall. This gradually increases in size as the substance of the leucocyte flows through until the cell will be pear-shaped with the small end adherent in the hole in the cement. This little pedicle finally comes away and the passage is complete. The cause of this diapedesis of leucocytes may be found primarily in the deteriorated condition of the vessel wall, by which facilities are afforded for its penetration, and in the inherent tendency of the cell to exert its power of amœboid motion. Contributory conditions exist in the pressure of fluid and other leucocytes from within and the probable fact that the surface of the endothelial plates are sticky and the cement substance, through which the cells pass, is not, so that passage through the stoma is easier than passage along the inner surface of the wall over the sticky endothelial plates.

The red corpuscles, not being endowed with amœboid motion, are not found in any quantity outside of the vessel unless death or rupture of the vessel wall occurs; then an immense diapedesis of red corpuscles may occur from the engorged vessels. A few red corpuscles are seen in the earlier stages, but they are those that some unwonted circumstance has thrown in front of a large stoma, and which the blood current has forced through.

The white and red corpuscles thus set free in the tissues are washed along by escaping fluid, and crowded forward by other leucocytes escaping, and finally may wander some distance from the vessel from which they escaped. The leucocytes also move away by their power of amœboid motion. Thrombosis, when it occurs, puts an end to the escape of fluid and of corpuscles.

The changes occurring in the inflamed tissue may be briefly described. The tissue is softer than natural, usually watery-looking, blurred, and the cells indistinguishable. The cells separated by fluid and obstructed by fibrine filaments and leucocytes, nourishment ceases and necrosis may occur.

Such, in brief, is the course of all inflammations. One point must, however, be borne in mind. If the cause of the irritation is removed and the general health is fair, an inflammation may be stopped at any stage. It may proceed to the point of dila-

tion with increased flow only. That is hyperæmia and a well known example may be found in the red hands occurring from handling snow or ice, or the redness of the face from exposure to heat; or, it may pass on to decreased flow, oscillation, or even stasis, and yet re-resolution occur without loss of substance. If coagulation takes place, an abscess with loss of tissue is bound to result.

Redness, heat, pain, swelling and impaired function—the clinical signs of an inflammation—are thus accounted for. Redness and heat are directly dependent on the amount of arterial blood passing through the part in a given time. In the earlier stages of the inflammation, during dilation with increased flow, there is an abnormal quantity of blood, fresh from the heat-producing centers of the body, passing through the diseased part. If that part lies superficially, redness and increased heat are markedly present. But if the inflammation continues to stasis, the inflamed area becomes colder than normal and is either bluish or motley colored. Inflammations of the internal organs are not accompanied with increased heat in the part. An inflamed area of lung is never hotter than normal lung, and in the later stages of inflammation will be colder; rise in temperature, when it does occur, is due simply to more rapid circulation of the arterial blood. The lungs, being already at the temperature of arterial blood, cannot become hotter. There is no heat generated in an inflamed area. Increased nutritive movements are required to produce heat; but decrease of functional activity, degeneration and death are accompanied by a corresponding depression of temperature.

Swelling is due to the exudation of fluids and corpuscles into the part; pain, to pressure of such exudate on the terminal nerve endings, mainly. Impaired function is the result of the general injury to the tissues.

Inflammations are divided by the pathologists into serous, fibrinous, productive and suppurative. The first two are but steps leading to one of the later forms of inflammation. Serous inflammation is due to a slight injury, usually. The exuded fluid is a little more albuminous than normal, and is increased in

quantity, but there are few, if any, leucocytes in it. In this form there is but little tendency to coagulation of the exudate.

If the irritation persists, the percentage of albumen, fibrinogen and white corpuscles is raised, and fibrin flakes form in various parts of the tissue. This stage is known as the sero-fibrinous form and leads on to the next, or fibrinous form of inflammation, in which the exudate is more richly albuminous and contains more leucocytes. There is a greater tendency to coagulate and "lymph" forms in the inflamed area. This lymph consists of fibrin containing leucocytes in its meshes and is typified by the exudate which glazes over the open wound a few hours after its infliction.

From the fibrinous stage an inflammation may become productive. Productive inflammations are those in which new tissue is formed; and without productive inflammation repair of wounds and restoration of lost tissue could not take place.

For the repair of lost tissue it is necessary that the causative agent be removed and that the parts be kept clean. If the loss of tissue be the result of traumatic influences, asepsis alone is all that is necessary; if tissue loss be caused by suppuration, removal of the irritant and the asepsis are indicated.

Productive inflammation is most conveniently studied in a gaping wound or a healing ulcer, because in these we may see the process as it occurs. The changes are precisely the same in the filling in of the space left after the evacuation of an abscess, but for purposes of description, the healing of an ulcer will be considered. The glairy, mucous-like lymph, which glazes the bottom and sides of the wound, becomes closely packed with leucocytes which have previously exuded from adjoining capillaries. Into this leucocyte-crowded matrix, spring little fibrillous capillaries—off-shoots of neighboring vessels—which, after penetrating the lymph to the free surface of the wound, form a loop, turning back into the lymph, and an anastomosing with either the parent vessel, or perhaps another new capillary. The leucocytes quickly gather round these capillary loops, for it is from the blood circulating in them that sustenance for this new tissue must be derived. This tissue is now known as granulation tissue,

because of the granular feeling of these capillary loops when the finger tips are passed over them.

More lymph is now formed by the exudate from these new capillaries. This in turn becomes crowded with the leucocytes, and is penetrated by still newer capillaries, and the process is thus continued until the lost tissue is restored. The leucocytes develop into fibrous cells, and the new tissue thus formed becomes fibrous connective tissue. It is popularly known as inflammatory or scar tissue. Scar tissue is an inferior grade of tissue. It is always more susceptible to instant effects, and is prone to break down under influences that would cause but a trifling disturbance to the normal tissue which it has displaced.

If the action of the irritant is intense and prolonged, suppurative, instead of productive inflammation may follow the fibrinous form. Suppurative inflammation is largely due to the presence in and action on the tissues of certain bacteria, most commonly the staphylococcus pyogenes aureus, or golden pus-producing cluster cocci. A form of suppurative inflammation may be induced by the action of certain chemical irritants injected into the tissue. The pus resulting from this irritation is free from bacteria, bland, and non-infectious. Pus resulting from the presence of bacteria is infectious, poisonous, and has a characteristic offensive odor.

For bacteria to propagate and perform their metabolic changes, it is necessary that the conditions be suitable. In the depressed functional activity, the lowered physiological resistance in tissue undergoing a severe inflammation, they find a suitable field for their life work. During metabolism, their waste products, or ptomains, are freely given off, dissolving and breaking down all tissue with which they come in contact. The cocci multiply rapidly and penetrate the tissues in all directions. Many of them die in their own effluvia, but propagation is so rapid that they are not missed.

After a few hours a layer of leucocytes may be seen surrounding the center of infection. Nature is endeavoring to repair the ravages of the micrococci by the formation of granulation tissue. At first the effort is in vain, the ptomains breaking down tissue

in all directions, into a thin poisonous liquid. This liquid contains disintegrated tissue infiltrated with dead and dying cocci and leucocytes, and is known as pus. Outside of this purulent formation is an area where the cocci and leucocytes are almost equally divided, and the farther from the seat of infection, the fewer cocci are found.

If this condition occurs in the depths of tissues, it is known as an abscess; if on the surface, an ulcer. If an abscess, the dissolution of tissue takes place most readily in the direction of the free surface, that being the direction of least density and resistance, and the abscess, unless opened artificially, will eventually reach the surface and burst. When that occurs, or when from any cause the pus is evacuated and cleanliness maintained, the balance of power between the cocci and leucocytes is in favor of the latter, and repair by the formation of scar tissue, as previously outlined, begins. The process just described is that occurring in acute abscess.

If in suppurative inflammation, the irritation is of small degree, but persistent—if the depression of vital activity and consequent lowering of physiological resistance is limited in severity, but not in duration, a chronic instead of an active abscess may result. For this to occur, it is necessary that the action of the cocci be restricted. This may be from various causes. In the alveolar process, it may be due to non-exposure of the devitalized pulp to air, in which case mummification or dry gangrene of the pulp may occur, or it may be due to partial drainage of the abscess through the crown end of the root, relieving pressure, which latter is a potent factor in the burrowing of pus through tissue, or there may be a fistula opening from the abscess into the mouth, acting as a drain. In this latter case, formation of pus may take place so slowly that the mucous membrane around the opening of the fistula will heal after evacuation, and not require puncturing for days or weeks, until the accumulation of pus puffs it out in a tumor-like formation on the gum. But from whatever cause, if the action of the ptomains be so divested of virulency that the leucocytes are able to hold their own in the struggle for supremacy, a wall of granulation tissue will be formed about the focus of infection.

The action of the ptomaines on the free surface of this wall will be intermittingly successful. When the vitality of the whole system is lowered by exposure, overwork, a cold, or any of various other causes, the equilibrium established between the action of the micrococci and that of the leucocytes is disturbed in favor of the former and the tooth, if it be an alveolar abscess, becomes sore. Often a little rest and tonic treatment with judicious stimulation of the gum over the affected part will restore the lost equilibrium and the tooth becomes easy once more.

In the course of months this wall of granulation tissue develops into fibrous connective or scar tissue, precisely as though the abscess had been evacuated and the entire lost tissue restored. This wall or sac is nature's effort to prevent the encroachment of pus on the neighboring healthy tissue. Now, if no new source of irritation arise, the fluid portions of the contents of this sac may be absorbed, leaving behind a dry, cheesy-looking mass that may remain encapsuled for years without any trouble, but eventually the conditions there will become favorable to the rapid propagation of bacteria and active inflammation will result. In case of an alveolar abscess, this variation in condition is often the result of decay reaching the pulp chamber and admitting moisture and bacteria to a dry, gangrenous pulp. Moisture and bacteria will quickly set up putrefaction, and all of the evils attendant on an active abscess will follow. This may also occur from mechanically opening up a long-since dead pulp without the necessary antiseptic precautions.

One thorough draining and cleansing of a small, active abscess is usually all the treatment necessary to effect a cure. But this is difficult to accomplish in the case of an alveolar abscess unless there is a fistula present. Given a fistula, and drainage is provided for. To thoroughly drain an abscess in the superior maxilla, through the root of a tooth at one sitting, is possible only under the most favorable circumstances. These favorable circumstances would be an abscess directly above the point of the root and a free opening through the latter. If the abscess is down on the side of the root, the operation is much more complicated. Abscesses in the inferior maxilla can seldom be thoroughly drained through a tooth-root at one sitting.

Therefore, considering the matter from the standpoint of the conditions present in the alveolus, immediate root filling is contra-indicated in these cases. It is a poor surgeon that would sew up a wound without providing for drainage.

But in chronic abscesses the contra-indications are still stronger. In this case, in the absence of a fistula, we have not only the same difficulty to contend with that we had in the acute abscess, namely, imperfect drainage, but the case is still further complicated by the probable presence of this "pus sac" of fibrous connective tissue. A plentiful formation of blood-vessels is absolutely necessary to the production of scar tissue. A newly-healed wound is always red, indicating an extensive blood supply. But in the course of months it becomes white. The fibrous connective tissue has contracted; these numerous capillaries, so useful in building up the new tissue, have fulfilled their purpose, and are now dispensed with, an old scar tissue has even fewer blood-vessels than had the normal tissue which it has replaced. Any one who will carefully examine a "pus sac" on the root of a tooth will be struck with its resemblance to old scar tissue. The resemblance need be close for they are pathologically identical. In the constant struggle for supremacy between health and disease, during the existence of the abscess, this sac wall has passed through the granular stage, and has become scar tissue.

For the lost tissue in that locality to become entirely replaced with scar tissue, after removal of the irritant and evacuation of the abscess, it is necessary that this sac be either destroyed or absorbed so that an active inflammation—a productive inflammation—may be set up in the contiguous tissue. This, and this only, will promote a restoration of tissue. That it is practically impossible to do this in one treatment, in the absence of a fistula, will have to be conceded. If this abscess is drained and cleansed daily for a few days, judicious irritation of its walls may result in setting up inflammation enough for the production of new tissue. A good opening through the root and as direct access to the abscess as can be obtained are essential to success. These cases often baffle our utmost efforts to control them. If there is a fistula present, the matter is much simplified. The root may be

filled and the fistula will serve not only as a drain, but as a channel of medication, if any such is needed after one thorough treatment.

Therefore, it may be assumed that the presence of an abscess, where acute or chronic, is a contra-indication to immediate root-filling unless there is a fistula leading from the point of infection. To obtain the best results, drainage must be thorough. That is a simple surgical axiom. And without a fistula, the root-canal must be depended upon for drainage.

This view of the question totally ignores the arguments for and against immediate root-filling that have for their base the conditions present in the pulp-chamber and canal. That is another matter. But from the standpoint of good common-sense surgery, and in the light of our knowledge of the pathology of these cases as just outlined, condemnation of immediate root-filling cannot but occur.

The immediate root-fillers have been short-sighted. They argue entirely from the condition in which they get and leave the tooth. More important, because more uncertain, questions are the condition of the peridental membrane and the adjoining alveolar process.

DISCUSSION BY E. S. HOLMES, GRAND RAPIDS, MICH.

MR. PRESIDENT: It is fortunate, on account of the crowded condition of our programme, that the subject treated in this paper and the lucid manner of its presentation renders a lengthy discussion unnecessary. I shall, therefore, occupy your time but a few minutes.

In his enumeration of the histological elements affected by inflammation, one tissue that seems to me to play quite an important role in this lesion is omitted by our essayist, probably inadvertently. I refer to the "third corpuscle" of the blood. Prof. Senn's Principles of Surgery, page 72. The slowing up of the blood flow in certain stages of inflammatory action, and the degenerative changes in the endothelial wall of the smaller veins causing it to become "sticky," are given by the author as the direct cause of the retardation of the leucocytes that in ab-

normal conditions flow at the periphery of the lumen, or on the outside of the blood current in the vessels; whereas, it seems to me that the viscid condition of the interior wall of the vessels is not the direct cause of the retardation in the flow of the white-blood corpuscles, but that it is due to the "third corpuscles," which, being small and light, flow on the extreme outside of the current, this forming a rough floor on the periphery of the lumen on which the leucocytes roll and tumble along and are thus retarded. Bowl a ball on a smooth, clean pavement and it will go a long distance, but the same ball, bowled with the same force over the same pavement covered with gravel, will be very much retarded and soon stopped. Thus the third corpuscles being retarded or adhered to the inner wall of the vessel forms a rough floor over which the blood flows with increased difficulty on account of friction, which it seems to me is a very important cause of retardation and stasis.

In the interest of accuracy of expression, perhaps attention ought to be called to the word "diapedesis" where it first occurs in this paper. It is here used to express the flow of the white corpuscles through the walls of the vessels. Now as the leucocytes do not flow through, but "crawl" through by amoeboid action, it seems to me to be an improper use of the word, and that it should be used, as it is farther on, to describe the flow of the non-amoebic corpuscles through the stomata in the walls of the vessels.

Permit me to refer to one other point in this paper where the essayist seems to take a position contrary to the generally received opinion. He says: "there is no heat generated in an inflamed area." One of the symptoms of inflammation is elevated temperature. If this increased heat is not produced "in an inflamed area," where is it generated? If in the lungs—the central furnace for supplying heat to the economy—then why is not the whole tract from the lungs to the "inflamed area" super-heated?

But as the temperature of the arteries is the same except in general fever, it may be claimed that the increase of the heat of the part is by accretion. But as the accretion is "in the inflamed area" it seems to me to be at least equivalent to the genera-

tion of heat at that point. The great source of heat is the chemical union of oxygen with carbonaceous material. The heat of your furnace is in exact proportion to the amount of oxygen combined with the fuel in it.

The normal temperature of all living organisms is kept up in obedience to the same law. The abnormal increase of temperature is produced and kept up by the excessive chemical union of oxygen and carbon, just as any other fire is kept up by combustion; and the pathological fire-place must be at the "inflamed area." The large consumption of carbonaceous material, by its union with oxygen, is the reason why inflammatory diseases are so very exhausting, both the elements being supplied by the blood.

The latter part of the paper being devoted to practice, founded on what seems to be correct principles, I have only to express my commendation and relieve your patience.

Four Requisites in Development.

BY. M. F. AULT, M.D., D.D.S., KOKOMO, IND.

Read before the Tri-State Meeting in Detroit.

Continued from Dec. No. Page 577.

Specific means definite, particular, distinctive, special. Scientific pertains to accumulated, systematized, established knowledge and in our teaching refer to physiology, anatomy, chemistry, etc.

To illustrate the topic of specific scientific instruction we will use the first branch named—Physiology. We are somewhat surprised when the laity asks the necessity of giving physiology a place in the dental curriculum or as is more frequently heard—I don't see what that has to do with dentistry, but we are much more surprised when senior students are clamoring for something practical and asking why they must study this subject while to extract, restore and substitute teeth will require their constant attention. Can our college authorities satisfactorily answer this

question? And also dispense with that languid, have-to-kill-time air of so many when in the scientific atmosphere of the college? We think the power which enforces scientific investigation can be vindicated, and if not the school must be one of manual training. Physiology, we will divide into two parts.—

1. Structural—Histological.
2. Functional—Vital.

And in the following synopsis we will exhibit the scope of physiological study for a dental student.

Physiology of the teeth	1 Structure	{	1 Physical	{	1 Hard	1 Enamel
						2 Dentine
	2 Nutrition	{	2 Soft	{	3 Cementum	
					1 Pulp	
			{			2 Peridental Mem.
						2 Chemical
						1 Proximate elements
						2 Digestion
						3 Secretion
						4 Absorption
						5 Circulation
						6 Respiration
						7 Animal heat
						8 Excretion
	3 Relations	{			1 Vascular	
					2 Nervous	
	4 Functions	{			1 Immediate	
					2 Remote	
	5 Anaesthesia	{			1 By internal agency	
					2 By external agency	{
		{				
6 Reproduction						

It is not the purpose of the writer to give a lesson in histology or physiology, but to demonstrate his method of teaching. Notwithstanding the desire that I always feel to have my pupils appreciate this branch in all bearings my sole study is to emphasize its relation to their calling, hoping that this would prove an incentive to general investigation.

To state to a class that white fibrous connective tissue, nerve tissue, blood, blood-vessels, lymphatics, unstripped muscular tissue and cells are to be subjects for study awakes but little interest and inspires fear, but first to illustrate by a large figure that can be seen from all points in the room, showing care and skill in using the crayon, that a tooth is suspended in its socket by fibres of white connective tissue; that immediately surrounding the cementum is a very peculiar form of lymphatic—that about half

way between the cementum and alveolar wall is a zone of nerves and blood-vessels and from the blood-vessels a spherical, nucleated cell works its way and by its differentiation it may become a builder of cementum a fibroblast—a bone-forming cell or an osteoclast.

The learner is at once intensely interested and confidence established, not only in the teacher, but in his own capacity for receiving and assimilating the subject. He is interested because he sees from the drawing that the explanation refers to vital structures within the field of his future operation and confidence to himself is secured by the large diagram fixing in his mind the points of size, shape, color, direction, location, relation, name and everything so suggestive as to almost reveal the function of each element. It is important to have the pupils follow in preparing the illustration as they will make a more minute inspection of the teacher's work—they have a chance to exhibit their personality in the work—to learn by doing, *i. e.*, to learn naturally and not have to go through the laborious, unsatisfactory and injurious struggle of committing to memory, besides there is a manual training in it and the faculty of form which is used in practical work is strengthened. Every one who proposes to instruct should make himself a black-board artist. Is the pupil's knowledge which is gained from the use of the microscope any more accurate than that gained by chalk diagrams? I think but very little. One reveals the object over-size—so does the other; one shows the location, shape and direction and this is true of the figure. I am not aiming to commend the one at the expense of the other but I am aiming to strengthen the black-board work by comparison. I believe the efforts of the learner in following the skillful crayon efforts of the professor is the proper introductory work to the use of the microscope as well as to make it an essential introductory for a lecture—the lens should supplement the deficiency of the best black-board illustration.

SECOND REQUISITE IN PROFESSIONAL CHARACTER.

Specific manual instruction.

This pertains to the chemical department of the college. Here the student is brought in contact with the text that breathes, feels

pain, passes judgment and returns her verdict, here the student stands in doubt and realizes how weak he is. He is just beginning to appreciate what dentistry means and sees that no man can understand a doctrine until he applies it to his own life. He is engaging in something which tests his nerve, sympathy, integrity and his judgment. He feels that while there is pleasure in oral and written study that if he experiences the highest pleasure, he must express himself in a perfect object, and to illustrate his work he must construct—he must build something.

My purpose is to present the systems of manual training, and show how they may be employed to keep all students systematically employed.

1. The learner must make something useful from the first.
2. The learner must proceed by two steps.
 - (a.) A drawing which represents principles of construction.
 - (b.) Construction of the object by fulfilling the conditions of the drawing.
 - (c.) Specific soul instruction.

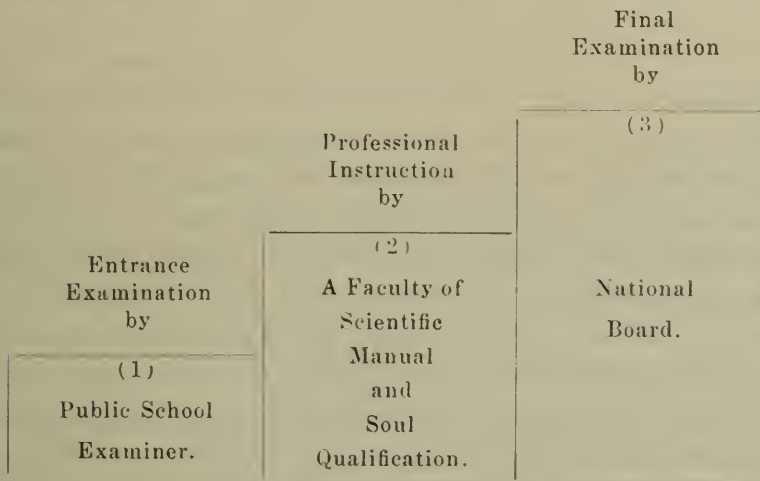
This pertains to the spirit which pervades the labor of life, and no student should be admitted into the sacred precincts of the dental profession until his soul is in harmony with that which has blessed us with our present advancement and still leads us toward perfection.

We believe that the sphere of our efforts in its truest sense is a part of the eternal realm of truth. We believe that the strength and firmness of dentistry lies in our unity and unbounded reverential devotion to it. We believe that we must manufacture a true sentiment as a portion of posterity's legacy, and also that there is a spirit with which we must become imbued, and in the presence of the most high swear to make the development of the power of our profession our prime aim in life.

THE FOURTH REQUISITE.

The fourth requisite in professional development is sufficient strength of character in some colleges to pass through a needed transition. I think there is a call coming from this age and some college must respond. The college which is willing to submit

the entrance qualification to a disinterested examiner from the public schools, to have its course of instructions strong enough to be able to submit the question of graduation to a National board whose sole purpose would be to replenish the profession with true ability is the college which will demonstrate the needed transition and in the most significant manner answer the call of the age. This would, in the truest sense, be a National Dental College; after a conservative survey of the situation, I would have all future aspirants enter the profession by three steps. I illustrate in this manner :



INFLUENCE ON STUDENTS.

Let us next examine the feasibility of this plan. According to the first step required no holder of a medical diploma or certificate from another dental college not of equal requirement would be exempt from examination, then all applicants must pass the literary test in the common English branches before a disinterested examiner, except holders of two-years teachers' license, or diploma from a high school, college or university. This requirement would rule out at least twenty-five percent of the candidates for admission. Is there a reason for continuing in the popular way—that inviting way which is practiced by colleges which talk much about repute? Let every one who has addressed a class containing twenty-five percent of illiterates—every teacher who has instructed the papers of unqualified students—every secretary

who has gone through the disgraceful sham of entrance examination—every professor who for his head's sake, for his purse's sake or because of his own stupidity sanctioned the graduation of many incompetent, men answer whether there is any reason for transition and the best means of securing absolute silence with reference to the phrase, "Good Repute."

Some may say, where would you get your students? I have, during the preparation of this paper, interrogated several students and their countenances invariably bore a smile of approval—their utterances were "that is right;" "I would like a diploma from such a school." The fact is human nature generally is seeking the best and will gladly submit to a discrimination which is clearly based on merit. A fair, certain and unflinching test for admission, and graduation when the applicant is able to pass a fixed standard of excellence is the only reputable, professional and just basis for issuing a diploma. Students with advanced and practical ideas cannot apologize for a system which awards the same diploma to all students. They say, "I am not able to determine whether my diploma signifies anything—the same form was granted to those who stood lowest and those who ranked highest, and the lowest made bad records in attendance, attention, deportment, punctuality, recitation and application. So it seems that all the management is interested in is the tuition—they admit us for money and graduate us to get rid of us." It is evident that every student expects to pass and it is felt to a certainty that the faculty cannot refuse to graduates, unless there is a very unusual violation of rules. When we first read the catalogue we thought a standard in literary training had been adopted and that students measuring up to certain percent would be admitted, but we were much surprised to find no examination or what there was, an object subterfuge, the meanest evasion, a forlorn artifice.

We all attend the same time—three years. Some are faithful and able to master the course in half of three years, others are stupid and indifferent and need three years and probably five; others are a drunken, beastly set and could not pass short of ten years if application to a problem which must be solved is the right requirement. We are certain that if a pupil could be eligible to

an examination before a national committee upon recommendation of the faculty that it would be justice to those who work hard and feel the need of saving time and money. Also it would prove the greatest incentive to the mediocre and a fair warning to those who are willfully stupid in brain, hand, profession or spirit.

[*To be Continued.*]

Address by the President, Dr. W. H. Todd, D.D.S.

Read before the Ohio State Dental Society, December 3d, 1895.

Members of the Ohio State Dental Society: It has been customary for your President to make an annual address. There would be nothing more appropriate than to make some general observations concerning the responsibilities centered upon this as State Society, the necessity of an increase of membership, and the influence it would have on the community at large if that could be brought about.

It must be borne in mind that this, as a State Society, has a responsibility that is not accorded to any local District Society. We are expected to formulate and promote any State law pertaining to dentistry, and if that law should lack any of the essentials necessary, even if it should be formulated by some interest foreign to the State Society, we are held accountable.

We should always take that dignified, unselfish and self-sacrificing professional attitude, which the general public so little understands and appreciate, knowing that our responsibility to the human family is fully as great, even if, through ignorance, they try to open the door of legislation so wide that dental legislation may itself be prostituted to purposes of dishonest jobbery and quackery.

Again, as a State Society, we are looked upon as representing the advanced thinkers and original investigators of dentistry in our State. As such we should make a prior claim to all original matter, and in return we can encourage these workers with our thoughtful sympathy and counsel, taking care that their

efforts, with the discussions that take place, will be carefully reported and placed before the profession.

There are dental journals throughout the State that should foster all interests in the Society and delegate themselves its official organs. In that way an interest could be encouraged in localities where there is none, thereby benefiting both the community and our Society.

Among the many perplexing questions which come before us is, how to bring up the standard of the dental profession. The college faculty is doing a noble work in the opportunities it gives a student and the high grade it requires to graduate, but this faculty can look around and see some of its best students stooping to the small and mean ways in the practice of dentistry that are so condemned by the profession.

Now, the question arises, what shall we do with the worthy graduate? Let him shift for himself? He has passed all the chairs and received his diploma, giving him the right to practice dentistry. He may have impressed all with his fitness for his profession, not alone by his desire to be the best in his class, but by the sense of duty that compels him to perfect himself in his chosen profession, so that his services may be truly worth their hire.

There are forty-eight dental schools in this country, with 1,208 graduates for 1895. How many of that number have joined our Societies?

The responsibility of the college faculty does not cease on the day the student graduates, for the diploma he takes is the faculty's endorsement of his professional standing and ability. Dr. J. Y. Crawford, in his address before the American Dental Association, requested that all reputable dental colleges formulate a uniform oath or obligation to which the student should subscribe. The faculty should impress the student with the importance of joining dental societies. He could then be made to feel that he had found a home where he could mature into a full-fledged member of a progressive profession where his mind, which has been so carefully trained, will find a field in which to expand and grow, and where he can become an original investigator in some of the

many branches of the profession ; whereas, if he be left to himself, he may be attracted by the many advertisements which are to be seen, and begin to lower the standard and character of dentistry by producing cheap and poor work, with a reckless use of some nostrum, of the contents of which he knows nothing, regardless of consequences for the sake of deceiving the public and gaining a fee—having but one desire, that to make money—having but one aim, that of doing cheap work at a high price.

With 25,000 dentists, what portion of that number attend our meetings?

If the Ohio State Dental Society be a representative the number is very small.

The dentist who fails to read the dental literature of to-day becomes a back number. The dentist who does not attend at least one meeting of a dental society during the year loses all interest in the elevation of his profession, and what right would he have to censure the layman for disrespect if he shows such a lack of interest.

If each member would exert himself and persuade one or more dentists from his locality to attend these meetings, with the increased number, what a power we might be and what an influence we might have in the community.

In concluding, I wish to express my pleasure at meeting with you again this year, that we may not only talk over some of the new thoughts that are to be presented at this meeting, but congratulate each other and the committee on the splendid representation we had from Ohio at the tri-state meeting.

We might consider here the invitation which was extended and accepted by the State Dental Association of Michigan and Indiana to meet with us in 1898, for we should all appreciate the work connected with such a meeting and do everything possible to assist the committee in their arrangements.

Since our last meeting death has taken from our midst a worthy and talented member of this Society, Dr. W. H. Sedgwick, sr., of Granville, Ohio, and who was President in 1890.

Diagnosis of Lesions of the Heart Previous to Administering Anæsthetics.

BY DR. W. H. WHITSLAR, D.D.S.

Read before the Ohio State Dental Society, December 4, 1895.

It is a serious problem when anæsthetics are given, to whom and under what conditions they may be administered. This is of such importance that every practitioner should consider well the advisability of assuming the responsibility of the care of an individual in an unconscious state. The topic before us, therefore, opens up to my mind these questions:

- (a) Do lesions of the heart interfere with anæsthesia?
- (b) Is diagnosis of the lesions an easy matter?
- (c) How may diagnosis be made?
- (d) What are the responsibilities?

Let us consider these questions. (a) Every human body has three circulating fluids, i.e., blood, lymph and chyle. The blood in man is proportioned to the weight of the body, as one is to thirteen, and this ratio is indicative of physical value aside from that of the vital. Of course we realize its worth in vital organization, because it is the provider of foods to the various tissues. It is also the scavenger that takes away impurities. It at one time or another contains everything about to become part of the tissues and everything which has ceased to belong to them. Morphologically, blood consists of plasm and corpuscles, red and white, also blood platelets. Normally, there exists in one cubic millimeter of plasm five millions of red corpuscles and three hundred thousand blood platelets. There is one white-blood corpuscle (leucocyte) for every five hundred red corpuscles. Blood being a circulating fluid, it is attended by three factors, i.e., its propelling force, fluidity, and size of vessels. All these, the heart, the plasm, thickened or thinned by numbers of corpuscles, and the lumen and area of vessel walls, modify the velocity of the blood current. Disturbances in either of these factors produce changes in the circulation of the blood. Now, if the circula-

tion of the blood be disturbed by anything for an undue length of time, disease is the result. We may, however, cause a transgression from the natural course for a short time by emotion, change of position of the body (gravitation), over-indulgence in food, and not seriously affect the blood currents, but these would, if too pronounced, manifest unusual disturbances in the action of the heart, therefore, from so simple an illustration it is easy to conceive changes wrought in the blood by the introduction of a vapor that poisons its composition sufficiently to produce that state known as anæsthesia. These changes are rendered less agreeable to the vital economy in proportion to the diseased conditions. Hence, lesions affect anæsthesia proportionately to their diseased condition and less proportionately to their compensated states found with lesions of the heart, simply because of the vitality of the organs being insufficient to resist greater ingress of unnatural bodies. The blood itself has most to do with anæsthesia, but this cannot move continuously without a propelling force, and if that be weakened you perceive the result.

(*b and c*) The greatest modifications of the circulating apparatus are to be found in the heart which forces blood to every nook and cranny of the body. The problem of knowledge of the diseases that affect the heart's action is partly physical, partly vital. Diseases of the circulatory apparatus are associated to a great extent with certain mechanical disturbances called lesions. This is owing to the fact that these organs subserve mechanical purposes and the regular rhythm is maintained by the pump arrangement and its distributory canals. To understand this class of diseases one must resort to physical methods of examination. Three of the great senses are used in this examination which includes an *Inspection* of the size and form of body externally; *Palpitation*, feeling the movements of walls of the thorax as well as heart; *Percussion*, which relates the condition of density by sounds; and *Auscultation*, also relating to sounds more specific in character. The pulse plays a significant part, as I will illustrate later on.

In order to comprehend the various lesions which produce sounds, or other defects, one must be familiar with the normal

heart's action. Normally, there are six sounds of the heart, as follows: two vibrations of the auricular-ventricular valves, two vibrations of semi-lunar valves, and two vibrations of walls of large vessels. Generally speaking these are resolved into two sounds, the systolic or first sound, by the contraction of the ventricles felt at the apex of the heart, and the diastolic, or second sound, heard at the base of the heart, by the sigmoid valves of the aorta and pulmonary artery.

All these sounds are functional; if altered they become organic, and then it is that we perceive disease. Alterations may arise from fevers, fatty degenerations or hypertrophies. Want of synchronous action of the valves of the two sides split one or the other into component elements so that either sound may be re-duplicated. Any condition which increases the lesion, either in the systemic or pulmonary circulation, may disturb the balance of the two sides so as to dispose to a re-duplication of the sounds.

Cardiac sounds may be replaced by murmurs in the heart or outside of it. These have a blowing, rasping, sighing, and other characteristics. To determine these and their significance, two important facts must be studied, namely their rhythm and their area of distribution.

The diseases of the heart and its valves which produce mechanical disorders of the circulation by establishing abnormal relations, are of two kinds: obstructive and regurgitant.

Valvular disease, narrowing the size of the orifice, presents an obstacle to the passage of the blood currents, a condition better known as *stenosis*. On the other hand, when the blood flows back through an orifice of imperfect closure of the valves, due either to widening of the orifice or valvular changes, the condition is called regurgitation or insufficiency. Each of the orifices may be affected with one or both forms of the disease, but the frequency with which the several orifices are attacked varies. Generally the left side of the heart is affected by organic disease. The right is disturbed by lung diseases which cause increased tension leading to dilatation. All valvular diseases tend to lessen the arterial blood and there is an over-fulness and a stasis of the veins. From this there follows visceral disorders.

This is often diverted by compensation to form a normal balance. In this we find that hyphertrophy assists by increasing the contractile power behind the defective valve. This produces greater tension in the vessels. Any failure of compensation is due to loss of nutrition, then occurs palpitation from slight exertion or excitement. From thirty to forty per cent. of all cases unassociated with other lesions are of *mitral* insufficiency. (Pepper.) Under chloroform, heart failure as a rule is due to fatty degeneration or mitral or aortic valvular lesions.

Now to diagnose these various lesions, endocarditis, myocarditis may be present and affect the tissues so as to produce alterations of sounds or conditions. Then, too, temporary affections of the heart may be produced by diseases of the liver. Murchison states that it is not rare to observe enfeebled circulation in hepatic disorder. It is believed by Faber and others that biliary acids have direct action upon the cardiac muscle. Independently of palpitations, syncope, and painful affections, nervous disorders, cephalalgia, insomnia, hallucinations, and so on, are secondary to hyphertrophy as a sign of disease. A common sign is palpitation. This is sometimes symptomatic of dyspepsia, therefore is not pathognomonic. It is on this account that many persons think they have heart disease, when it is only a reflex irritation from the digestive organs. It is often supposed by the ordinary observer that intermittency of the pulse is an indication of heart lesions. This is common in men of advanced age. It is a nervous trick and bears no significance if it is a pure halt of the heart. Intermittency with irregularity may be found in fatty degeneration of the heart or during fevers. In valvular disease the value of the pulse is best known by the use of the smygmo-graph, but this is generally impracticable because it does not assist as much as the physical diagnosis directly over the heart by the methods already mentioned. Now, I mention these facts to show that diagnosis of lesions of the heart is not an easy matter, and that a knowledge of not only the heart but lungs and visceral organs is required to comprehend fully cardiac diseases. By the fact of difficulty of diagnosis of these affections it is more apparent that responsibility is serious. The use of an anæsthe-

tic is attended with appreciable risk and the life of the patient is endangered. Occasionally, there is a death. Dr. William Pepper states, that "on the whole, sudden death is rare from valvular disease." This favors, if true, the ignorant man who uses an anæsthetic and there is no doubt it saves many lives that are jeopardized by ignorance. The law, however, does not recognize ignorance, even if the ignorant be careful. He must have a knowledge, then skill.

Some Thoughts on the Combination of Amalgam and Gold.

BY DR. F. W. KNOWLTON.

Read before the Ohio State Dental Society, December 4th, 1895.

Amalgam and gold in combination as a filling material is indeed an old subject, and we wonder what more can be said regarding it; but the fact that it continues to be discussed seems to indicate that it has inherent qualities which are worthy of our consideration. Those who are conversant with the practical use of this material in their daily work need not be reminded of the many benefits to be derived by both patient and operator, and the thoughts expressed will be merely a repetition of that with which they are familiar, for I have not the hope of presenting any new idea or mode of procedure, but I am glad to give others the credit which is due them for what has been accomplished in this line.

Perhaps there are some who have not experienced for themselves its merits, whether from lack of faith in the results, or otherwise. If there be any such present, possibly there may be something said in this paper, or the discussion of it, that will induce them to give such a filling a fair trial, that they may know if there be any virtue in it. I hardly need state that the same care and judgment are necessary in the application of this as of all filling materials if we would attain the results which are possible. It is when we make a use of filling materials other

than that for which they were intended that they are unable to withstand the criticisms passed upon them, and are condemned in consequence of a lack of proper discrimination. Many times this combination can be used and better results follow than when gold or amalgam alone are relied upon, and in not a few cases in which it would be impossible to obtain the desired end with any other material. The plea that two sittings are necessary in order to complete such a filling no longer holds, for with good alloy and Steurer's Plastic Gold such objections are overcome with entire success, although in some cases there is an advantage in allowing the amalgam to harden and complete with the gold at a subsequent sitting. The satisfaction of knowing that there is a perfect union between the amalgam and gold, giving you practically one material, is certainly something in its favor. I do not think that this kind of work will make slovenly operators of us, for the care necessary for its successful insertion is best realized by those who are familiar with its workings.

As an illustration, we will take a lower molar tooth, medium in texture, the proximal surface badly undermined, usually extending on the occlusal surface.

Under existing circumstances we may dislike to put in amalgam, and hesitate to insert a gold filling, but if we can combine the two, retaining the better properties of each and avoiding the less desirable ones, is it not a good practice to follow? In such a case the different parts of the cavity are prepared consonant to the metal it is to receive, the lower third, or possibly half of the cavity, depending somewhat on the size of the same, made suitable for an amalgam filling, the remainder of the cavity prepared for gold, this to be retained in place independent of the amalgam portion. Adjust the matrix securely, and at the lower third or half, as the case may be, perfectly, so there will not be the least danger of any of the amalgam being forced out around the matrix. Insert the amalgam in the usual way, filling the cavity rather full and then remove it down to the proper amount. In this way the portion that remains will be quite hard and free from excess of mercury. Insert the plastic gold immediately, forcing it on to the amalgam with large points at the start, con-

tinue adding to the gold until it finally overcomes the mercury, then complete the filling in the ordinary manner, using the same or any other gold you may prefer. Remove the matrix and finish as you would any gold filling, noting the ease with which you are able to dress down the filling at the cervical margin without any great annoyance to the patient. The galvanic action which takes place, as a result of the contact of the different metals, causes the oxides and sulphides to be deposited on the amalgam more abundantly than when it is used alone, consequently this portion of the filling becomes quite black, which to many is a commendable feature, preventing recurring delay at that vulnerable spot, the cervical margin, whether mechanically, by filling the dentinal tubules, chemically, therapeutically, or by all combined we leave to each one's choice, but this we do believe, that the results obtained justify the means. There is no bulging, crevicing, or disintegrating of the amalgam under the galvanic action, for it remains just as left after it receives the finishing touches. The gold portion of the filling serves us in its own good way, preserving its own and the margins of the tooth as only gold can, under the strains to which the teeth are subjected in this location during mastication; and that important part of the operation, that of reproducing the original contour of the tooth, which tends to preserve the health of the surrounding tissues and makes a presentable piece of work in the eyes of the patient, can best be accomplished with gold. There is a pronounced diminution in the number of troublesome cases caused by the extremes of heat and cold, more so than when either metal alone is used under like conditions, but this must not be taken as an argument that we need not use precaution. No tissues are apt to perform their normal function, unless free from irritation, and whatever aids us in maintaining such tranquility of nerve possesses a commendable feature. This is only one of the many valuable combinations which we are permitted to use in operative dentistry, and it does seem as though there are good grounds for the belief expressed by many of those prominent in our profession that this sort of filling will prove satisfactory to patient and operator, but only when coupled with that essential element of a dentist's make-up—judgment.

Dental Education.

BY W. T. JACKMAN D D.S., CLEVELAND, OHIO.

Read before the Ohio State Dental Society, December 4th, 1895.

Mr. President and Members of the Ohio Dental Society: When the worthy President of this Society, Dr. Todd, requested me at the Tri-State meeting in Detroit, to write a paper for this meeting, I felt like reminding him of the scriptural injunction, "In honor preferring one another," and thus asking him to give the honor to the other fellow. But his persistence led me to conclude that possibly a duty toward this Society should be discharged, and this is the reason for acquiescing in his desire.

Dental education, like almost all other dental subjects, has been so thoroughly discussed of late that one is led to conclude there is hardly a division of this broad subject which has not been written or talked about. However, I believe we all concede that but a start has been made toward a final solution of certain phases of this, at the present time, all important subject.

When, where and how shall the dental student be trained for this most important of all secular callings?

What would be the best dental legislation for each State, or rather, how shall the legislation of the various States be made to harmonize?

What should be the literary attainments of the applicant for dental honors?

The answers to these and many kindred interrogatories have not, as yet, in the main, been satisfactory. The writer is glad to know, however, that these questions are being given much thought by the profession at present, and it is reasonable to conclude that the most of them will reach a satisfactory solution at no very distant day. If each writer on this subject can but add a single candle power of light to assist in illuminating the way, he will have done something toward solving these vexatious problems. If you will kindly give your attention for a few moments the writer will give you a few conclusions, in brief,

pertaining to this many-sided subject. What shall be the literary attainments of the applicant for dental honors? Since this, of all others, is conceded to be the age of progress in the educational world, and if we desire, and we certainly do, to be known as a learned profession, or, if you prefer, a learned specialty in the medical profession, then the time has come to require a higher literary training; certainly nothing less than the evidence of graduation from high school, the possession of a teacher's certificate from the County Board of Examiners, or their equivalents for admission to our dental schools. Bishop Vincent said recently to a class of young men for clerical honors: "God does not so much call men to preach as He calls them to *prepare* to preach." So with dentistry. The crying need of the people to-day is for men and women to *prepare* to practice dentistry. If the applicant possesses the above literary training, then he should seek a tutorage, for at least one year, with some good dentist, not so much to actually *do* in this brief time as to see *how* to do. Let him spend the greater part of this year reading on operative and prosthetic technics and then he will be ready to take up his college work and push it with such a vim to a successful termination as the untutored cannot dream of. If he can afford to spend two years with a good preceptor, so much the better. Then follows his college course which should not be completed before twenty-one years of age. He should now be ready or prepared to begin the practice of dentistry.

It is, indeed, pleasing to note the advance the dental schools have made during the last decade, probably a greater advance in thorough practical teaching than in all their history before. In fairness to the schools organized in the last few years, it must be conceded that they gave the impetus to nearly all this forward move for greater things. Whence came that modern idea, that idea which has almost revolutionized dental teaching—dental technics? Surely not from the old schools. Let it be understood we would not wrest a vestage of honor from the older schools, for they have done a splendid work; but it must be admitted that they have fallen into somewhat of a rut in their methods of teachings. When the National School of Dental Technics

was organized, a year ago last August, at Old Point Comfort, it was gratifying to see those schools eagerly becoming members, and those who did not join at that time fell into line, we believe, this year at Asbury Park. So all are now on the same high plane, each eager to do its best for those who apply for instructions within its portals. The National Association of Dental Faculties has had much to do in bringing about these much-to-be-desired results. While it is very pleasing to note the forward move by the colleges, it is with regret we are compelled to take cognizance of the fact that there is another body endowed with vast power which does not seem awake to its possibilities—we refer to the National Association of Dental Examiners. *It is to this body that the profession must look to harmonize the dental laws of the various States, and see to it that those States which have no dental law get one as soon as possible.*

We know it may be argued that the function of an examining board is to carry out certain provisions of law already made. This is true as applied to individual States, but not so, we take it, as applied to the National Association of Dental Examiners; for there is no national law to govern them, but rather their function is as stated above. We note but fourteen States and the District of Columbia were represented at the last meeting. This leads us to think that unless a better organization is effected much help along educational lines cannot be hoped for from this body by the profession—certainly not in the direction of dental legislation.

Let the National Association of Dental Examiners effect a *thorough* organization. It is suggested that a special effort be put forth to have every State in the Union, as well as every reputable school represented, no difference whether said State has a dental law or not. Get a representative dentist from that State to come, and try to get him enthused with the idea of the necessity of getting a dental law in his respective State, and help him to get it; for, as stated, this body should be the central authority from which all suggestions pertaining to dental legislation should come. This being true, then when this body deems it wise that dental laws should be made so and so, should be

amended or revised, then the dentists of the various States should see that it be so. 'Tis true, gentlemen, to accomplish this will require a few years of hard, persistent work, but will not the results be worth infinitely more than the cost? Then will we have reached the point where one State cannot say to the practitioners of a sister State, even though they be graduates: "Our standard is higher than yours, therefore, if you wish to practice within our borders you must pass a special examination."

After a thorough organization of this body the first thing to be accomplished, in the present chaotic condition of legislation, is to see that every certificate gotten by actual examination from one State board is received by every other State board as *prima facie* evidence of the owner's right to practice dentistry. Volumes have been written on this point, but it seems to the writer this question can be settled very easily and with justice to all.

National legislation, barring the question of constitutionality, might be, after getting it, very unsatisfactory to the profession.

This national body, when organized as above, should, at each yearly meeting, formulate a list of questions and decide as to the nature of the clinics the applicant should give, for I do not believe a single person should be granted a certificate without his first having demonstrated his ability to *do* as well as having given satisfactory evidence of his *theoretical* knowledge. Then each board should use this list for the following year, the national body formulating a new list each succeeding year. This seems to be a solution of this matter "in a nut shell." In this way each State can ratify what the other does. Some may say that would necessitate a revision of some of the State laws. Grant that; would it not be an easy matter to convince legislators of the equity and justice of such a revision?

Just a word in regard to the formation of our State boards. The writer does not believe we shall ever have the kind of State boards we should have until their creation is divorced from politics. The State board should be the progeny of the State society. Its creation should be by election. Such men only should constitute our State boards who have a high conception

of dental education—such men as will assist the colleges in their efforts to elevate the standard of dental education by making their test of the applicant's fitness even more severe than that of the colleges. If the National Association of Dental Examiners will create such a standard there will be no need of the States passing laws requiring that all applicants for certificates be graduates; for, if such a standard were created, then probably not more than one non-graduate would receive a certificate where a hundred now do.

Another plan is suggested for the formation of State boards and their duties pertaining to the harmonizing of legislation of the respective States, namely: Let each board be composed of not fewer than five members; when there are two or more dental schools in the State let there be two members for each school with an extra member, that the board be composed of an odd number; this board, then, should hold the final examination for the colleges within its State. When a student is given a diploma after such examination, said diploma should be a passport to practice dentistry in any State in the Union. This State body to be governed, of course, by the national body as outlined above. This would relieve the various dental faculties from the responsibility of the final examinations and thus whatever of odium might be attached to the granting of degrees to supposedly incompetent persons would be removed, at least, from the faculties.

The central thought of this paper, as you will have noticed, has been to suggest some ways, without entering much into detail, out of the legislative tangle the profession is now in. Whatever of merit or demerit these suggestions may have, it is hoped that this society will thoroughly discuss this feature of the paper and put itself on record so that eventually the profession may arrive at something definite pertaining to this phase of dental education, viz: dental legislation.

DON'T use soap and water on the body just preceding the application of cocaine; the alkali destroys the anæsthetic action.

The Use of Compressed Air in Dentistry.

BY S. FREEMAN, NEW YORK.

Abstract of a paper read at the American Dental Association, August, 1895.

The dentist, who is called upon to treat and relieve the pain of such delicate and sensitive structures as the teeth, which bear an intimate anatomical and physiological relation to some of the most important organs of the body, should naturally look forward to that which can assist him in the practice of his profession. It is therefore essential to his success that he be provided with all necessary appliances which will aid him in his operations and mitigate the sufferings of his patients.

With this aim in view, no procedure appears to me to be more conducive to success than the application of compressed air, an agent which I employ extensively in operative dentistry, and it affords me great pleasure to call your attention to the divers instruments which are in use, and the application of which I will explain and demonstrate in detail.

Permit me to explain the methods of producing compressed air and the manner of conducting the same to your operating chair. It is obtained by means of a suction pump which sucks in the air and forces it through a pipe to a reservoir, as it is necessary for our purpose to have a continuous and considerable current. I would not advise the use of a hand pump or small cylinder, as in employing them you will find that both the air and the operator become quickly exhausted. I would, therefore, recommend that which is known as the "champion beer pump" or the compound pump of the same manufacture, for I find them both the simplest in construction as well as the most satisfactory air compressors on the market to-day.

Before placing the pump in your office, ascertain how many pounds of water pressure you have; if, as in my office, you have only twenty pounds the champion pump will not furnish, contrary to the claim of the manufacturers, the same amount of air pressure as water; as there is, as I have discovered, a loss of a few

pounds; such being the case, the compound pump (although a few pounds of pressure are also lost) is preferable, as it is frequently necessary to have the air at a pressure of forty to fifty pounds to the square inch.

This pump is connected with the reservoir, which is a tank containing eighteen gallons of air tested to one hundred and fifty pounds pressure to the square inch: from this runs a quarter of an inch block-tin pipe, with branches to my laboratory and operating room; to this pipe I have attached a regulator and a gauge, the regulator being nothing more than a screw valve, as you loosen the screw you close the valve, and vice versa. From the regulator a pipe leads to the gauge, which indicates the number of pounds pressure. I use the one hundred pounds gauge, as it enables me to ascertain the maximum amount of pressure in my office. The pressure generated by the compound pump is sometimes so great that a lower gauge will not register it. To the gauge is connected a distributing pipe with three small cocks to attach the rubber tubes and the cut-off. The tubes should be of heavy rubber so as to withstand a high air pressure. The cut-offs close automatically.

In the practice of dentistry it is absolutely necessary to have the mouth in an antiseptic condition; to produce this effect no doubt many of you use the hand atomizer, which, by the continuous pressure of the bulb, causes a slight cramp in the hand; with the compressed air apparatus we do away with this work, you have the tube steadied, and can thoroughly cleanse the mouth or any cavity. I derive excellent results from the following prescription:—

R	Borine	-	-	-	-	-	-	1 part.
	Pyrozone Med.	3 percent.	-	-	-	-	-	2 “
	Water	-	-	-	-	-	-	1 “

This makes an agreeable mouth-wash, applied with a spray.

No doubt you have frequently met cases where you would prefer to place on the rubber dam, but owing to the patient's inability to breath through the nostrils, you were compelled to send your patient away or otherwise work at a great disadvantage.

How often have you cast about for a remedy? It is a simple

one; a two percent solution of cocain placed in an atomizer attached to your compressed air apparatus, which is gauged at ten to fifteen pounds pressure, and the spray thrown into the nostrils will invariably relieve that posterior nasal catarrh or reduce the swollen tissues of the nares to such an extent that you can proceed with your work in a few minutes without any inconveniences to your patient. In using the spray for this purpose have your patient sitting upright in the chair, the head inclined slightly forward. Insert the tube horizontally into the nares and do not apply over ten to fifteen pounds of air pressure, as otherwise you may set up an irritation of the middle ear. In stomatitis of the various kinds, the spray employed with a high pressure produces excellent results. In aphthous stomatitis, which usually requires about a week to ten days to heal, I have succeeded in obtaining a cure in two days. Probably the citation of the following cases will enable you to understand the value of this agent.

Mr. H., age seventeen years, applied to me for treatment May 7th, 1895, suffering from large grayish patches situated on the lower and upper lips. These patches were very painful; I applied the following prescription:

R Pyrozone Med. 3 percent. - - ʒiv.
 Borine - - - - - ʒii.

with my atomizer under forty pounds pressure; in about two minutes it produced bleeding of the sores, washing away the grayish patch, and you could see the ebullition of the pyrozone, leaving escharotic spots similar to those produced by the application of the caustic pyrozone. I gave the patient the mouth-wash recommended by Dr. Sudduth, of pyrozone and soda mint; the patient reported on the ninth day of May having no sign of the patches. This method of treatment was not painful and proved very efficient, as I have used it in similar cases with uniformly good results.

A patient affected with mercurial stomatitis presented himself to me on June 5th, 1895. I found that characteristic lesion of the edges of the gums with considerable ptyalism, which excoriated the corners of the mouth, and was informed by the patient's physician that some time previous to the appearance of this dis-

ease, the patient had been taking mercury, three times a day, for three months, and during this medication, he would discontinue the use of the drug as soon as the teeth were sore to the touch. He was having his teeth attended to by a fellow-practitioner, who having learned his condition, upon the appearance of this lesion, treated the parts locally with glycerole of tannin and iodine, using, as a mouth-wash, Listerine. After treating the patient for three weeks without success, he concluded that it was secondary syphilis, and sent the patient to his physician for treatment. The physician, recognizing the condition as a mercurial stomatitis, referred the patient to me.

I used the pyrozone med. 3 percent on the diseased parts with a spray gauged at thirty pounds pressure, and gave him for a mouth-wash: Pyrozone Med. 3 percent, and Borine, equal parts.

When the patient applied to me, he could not eat his food without pain; the next day he reported, stating that it was the first time in some weeks that he enjoyed eating a meal. After three treatments with the pressure increased to fifty pounds, I found a decided improvement in the condition of the mouth.

The sloughing of the edges of the gum disappeared after the first treatment, and in four days the gums were in quite a healthy condition. At this time the patient was called away from the city, and I have since learned that the tissues are in a perfectly healthy condition. Before applying any medicines to the gums, it is always necessary to have a dry surface, so that the medicament may be readily absorbed and not distribute itself over the surface of the tissue.

I found it somewhat difficult to obtain a dry condition of the gums in the posterior portion of the mouth before employing this apparatus. Now I find it a very simple matter. By drawing back the corners of the mouth with a napkin or piece of cottonoid, and throwing the compressed air directly to the spot, it requires only a few seconds to procure the desired condition of the mucose, and upon applying your medicines, you get immediate absorption.

Now, I again have recourse to the air pressure, which seems to drive the medicines deep into the tissues.

In periostitis I prefer to use the cold-air current, which in itself gives relief to the patient.

In this manner the application of counter-irritants, sedatives, and local anæsthetics is made easy. With cocain you do not obtain as deep an anæsthesia as you do by the hypodermic injection of the drug; with a four percent solution I was enabled to leave abscesses within twenty to thirty seconds without pain, and I have produced with a ten percent solution sufficient anæsthesia to extract teeth, and did not observe the toxic symptoms which you frequently have following an injection.

In the treatment of pyorrhea alveolaris, it is absolutely essential that every particle of deposit of whatever form shall be removed, and that the debris shall be thoroughly washed away, leaving no particles to be ulcerated out; to do this it requires a vigorous stream of water.

Dr. J. N. Farrar introduced for this purpose a set of four syringes, with delicate points. I use this bottle, attached to my compressed air apparatus at fifty to sixty pounds pressure, which throws a stream with such a force as to entirely cleanse the parts; then I use the Davidson spray tubes, filled with Pyrozone Med. 3 percent and Borine, equal parts' which throws out such copious spray that it lifts the gum tissues away from the teeth, introducing the medicament directly to the seat of trouble, forcing away all foreign particles and giving a clean antiseptic condition of the parts.

It has been demonstrated that when the water is removed from a tooth, the normal function of transmitting impressions seems to be modified. This desiccation can be accomplished by several agents, heat, cold and chemicals. We know that heat or cold will produce pain, and in the application of either we should proceed with extreme caution.

I use a hot-air syringe similar to the S. S. White No. 30, only it has twice as large a cylinder. The chamber is filled with carbon, which is found to be one of the best materials for retaining caloric, and only requires a few minutes over a Bunsen burner flame to accomplish the requisite amount of heat. With these syringes attached to the compressed air apparatus, you can so regulate the flow of air that in from one to five minutes you have your tooth thoroughly dry; then introduce your medicine heated

to about 95°F., and then applying your warm-air current with about forty pounds pressure, you will be able to excavate your tooth without pain, nor will you have any subsequent irritation. With this method it is not necessary to employ acids in introducing your cocain, nor is much of your valuable time wasted waiting for the absorption of the medicament. You can also spray your medicines into a tooth, but I would first advise the dehydration of the dentine.

In the bleaching of teeth I find that by the application of hot air at a high pressure, I am able to produce the required condition in one-half the usual time, as you rapidly evaporate the pyrozone 25 percent and force it into the tubuli.

It is necessary to be cautious in bleaching teeth so as not to get them too white, as you will frequently observe them somewhat lighter colored on the following day.

In making a tooth perfectly aseptic, the same method of applying your drug as I have recommended in inducing anæsthesia, will give you a reliable antiseptic condition of both tooth and root.

In setting in pivot teeth, we often find it very difficult to carry the cement to the upper portion of the root.

In forcing it into the root canal with a dry instrument, upon withdrawal of the latter the cement is found adherent to it and not to the walls of the root; but with a high pressure you can force it into every irregularity of the root, while at the same time the compressed air will dry all the surrounding tissue and you avoid the necessity of wiping away the moisture excreted by the mucous glands.

A Rare Case.

BY H. L. AMBLER, M.D., D.D.S., CLEVELAND, O.

Abstract of paper read at the American Dental Association, August, 1895.

A young man, aged seventeen years, has both superior lateral incisors missing and no outward signs of their being imbedded in the jaw.

The inferior denture has the proper number of teeth, but both of the central incisors are remarkably small, perhaps one-fourth the size they should be; still, they are of good form and structure, firmly fixed in the alveolus, and the gingiva indicates well-formed roots, about in proportion to the crowns. The young man's father, mother and grandmother, who are very intelligent people, and have a dentist in the family, state that they are positive that the temporary central incisors were shed, and that these two small teeth erupted in their places.

Both superior and inferior temporary dentures were normal. His mother needs a left superior lateral incisor to complete a full denture; the father's is complete. The grandfather and grandmother, on both the father's and mother's side, had the full number of teeth. The only abnormality we could trace, except the mother's, was that the grandmother retained the left superior temporary cuspid until she was fifty-three years of age, at which time a permanent cuspid, of fair form and size, erupted and is still in place after a lapse of twenty-three years.

A Suggestion About Cocain.

BY G. E. HUNT, D.D.S., INDIANAPOLIS.

Abstract of paper read at American Dental Association, August, 1895.

A survey of the situation leads me to think that the percent. solution is largely responsible for the various ill effects observed. The great majority of dentists, I believe, get their two, three or four percent. solutions put up by a druggist and their ideas of how many grains of cocain are required to make a four percent. solution are often hazy.

In the majority of cases an eighth or a quarter of a grain will accomplish the desired result, while the maximum dose, one-half grain, would be attended with, at least, temporary ill effects. I would suggest that the percent. solution be entirely ignored in using cocain, *per se*, and that the intended dose be dissolved in an

indefinite, convenient quantity of water and the entire amount exhibited.

Following this plan of procedure will impress *dosage* on the operator in a manner that no other method can succeed in doing. Another, and a potent argument in favor of this mode, is the fact that every solution used is a fresh one. The rapid deterioration of cocain solutions renders the degree of effects produced from twenty-four or forty-eight hour solutions extremely problematical. By dissolving the cocain as it is needed, and only a short time is necessary to accomplish this, the full effects of the drug are assured.

In order to use cocain in this way it becomes necessary to have a pair of balances for the accurate measurement of the drug. These balances will, however, be found useful in various ways and should be part of the equipment of every well-conducted dental office, whether cocain is used or not.

The Necessity of and Methods for Better Pulp Protection in Filling Teeth.

BY J. D. PATTERSON, D.D.S., KANSAS CITY, MO.

Abstract of a paper read at the American Dental Association, August, 1895.

In considering this subject no reference will be made to pulps which have become exposed or are in a pathological condition from near exposure, but to fairly deep-seated cavities in the teeth of patients under twenty-five years of age, which are usually filled with the prevailing materials without any endeavor to prevent pulp irritation, the operator believing that no considerable trouble will be possible either from the presence of a filling with the property of conducting thermal changes, or from the irritant nature of other filling materials in common use.

In this class of cases every observant practitioner has had his attention directed to the number of pathological conditions arising in after years from death of the pulp. Where there is soon

occurring trouble after the insertion of a filling upon a nearly exposed or pathological pulp, the removal of the filling and usual treatment finds immediate cure, but where the pulp death comes from long-continued, generally imperceptible irritation, the danger is greater.

Dr. Patterson presented two cases for the consideration of the society. The first, showed the loss of five teeth and the surrounding process in the mouth of a young lady, aged twenty, from the death of a pulp under a gold filling in a lateral incisor. The filling was inserted thirteen months before the inflammation began. Some irritation, through thermal changes, was felt after the insertion of the filling, which soon subsided.

When I first saw the case, only four days after the inflammation began, the lateral, central, and two bicuspid could be removed with the thumb and finger, and they were at once removed, as the process in the vicinity of these teeth was stripped of periosteum. When the trouble first showed, the lateral was drilled into and mummified pulp remnants were found. Vast quantities of pus followed rapid swelling. The most persistent surgical treatment was instituted, but without avail. The cuspid had to be removed on the sixth day. After extraction of the teeth the inflammation abated somewhat, and after three days more the process, piece after piece, sequestered and was removed. All of this resulting from a small gold filling in the lateral which did not approach the nerve half way through the dentine.

The second case was almost a parallel one, save that the death of the pulp resulted from a cement filling inserted in a central incisor seven years before. Both patients were found to be free from hereditary taint.

As a protective capping gutta-percha stands in the first place. However, it cannot be used save in deep cavities where there is room for a good layer of cement over it upon which to condense gold.

Non-cohesive gold is advocated for deep-seated cavities; for it seems to be less of a conductor of heat and cold than the cohesive gold as condensed with a mallet. The reason of this is because a non-cohesive filling is in no way a cohesive mass; can-

not be welded together, and when a cavity is filled with a layer after layer of this gold the thermal shock is conducted along the layers and not down to the bottom of the cavity, for there is no intimate connection between the different particles of the different sheets.

In this material we have an admirable pulp protector. A pad of sufficient thickness made by doubling strips upon each other and burnished over the pulp, has, in my hands, secured the best results.

A National Dental Library and Museum.

BY WMS. DONNALLY, WASHINGTON, D. C.

Abstract of paper read at American Dental Association, August, 1895.

“There are now 150 public museums in the United Kingdom, all active and useful. While museums in their too rather vague divisions of science and art attempt to cover the whole field of human thought and interest, there is an increasing tendency to specialization, and from this we may expect a nearer approach to perfect work and a more direct influence upon the separate departments of human activity.”

The writer then cited the advantages of the Army and Medical Museum and Library at Washington, as the proper place for the institution of a national museum and library. It is stated that the Medical Library, in March, 1895, contained 114,567 bound volumes and 183,778 pamphlets. The library contains three-fourths of the medical literature of the past ten years. There are about 53,000 visitors to the museum and library annually, besides the library is used by over 3,000 students annually.

After citing the advantages of this institution, he said: “Never was there such an opportunity freely offered a profession to safely and certainly perpetuate the fame and effect of its achievements, to give it a higher place among the learned callings, to acquaint the profession and the general public with its acquirements, and to secure to it a depository of all things of present or

future historical and educational value—a depository already famed as the richest in medical lore and further enhanced by its unequaled index-catalogue. You are urged to consider the invitation of Dr. Billings, to formally adopt this government museum and library as your own National Dental Museum and Library.”

The Office and Eccentricities of the Dental Pulp.

BY D. D. SMITH, PHILADELPHIA, PA.

Abstract of paper read at American Dental Association, August, 1895.

It is well known that the different formations which make up the body of the tooth receive life and nourishment from two distinct sources; from the pulp and from the pericementum of the root. The pulp is the central figure; the important factor of every tooth. To it is committed the care of the newly erupted tooth and its office work is to readjust, recalcify, consolidate, strengthen and sustain the enamel and dentine.

As a rule the earlier a tooth is developed the more readily it yields to decay, and the more time taken for calcification before eruption, the greater the resistance to decay manifested on the part of the tooth. * * *

The law of *use* governing tooth consolidation, widely known and rigidly observed among patients, would probably do more to arrest the extensive decay now prevalent, between eight and fifteen years of age, than dentistry can ever accomplish by mechanical methods.

Too much importance has been and is attached to inheritance as determining the character of the teeth. Standing in advance of inheritance, for children, is *use* of the teeth in mastication. An effort should be made to save the first permanent molar. Devitalization of the pulp carries with it a more or less rapid retrogressive change in the quality of tooth material, and that without power to arrest it. Fillings may prolong the existence of the tooth, as such, but with the arrest of vitality in the pulp

there is cessation of all vital sustaining action, which hitherto assisted in its preservation, and not only so, the imperfectly calcified enamel and dentine already built into the tooth, is now in contact with devitalized connective tissue, which, in the imperfectly consolidated tooth, becomes itself probably a source of disintegration, and assists in its destruction. What has been said of the first permanent molar may also be said of all other of the young permanent teeth. Later in life we do not find teeth which have been decay resisting for fifty or sixty years, changing in structure, assuming a state of partial decalcification, returning again to the conditions of childhood, as evidenced by their yielding more readily to decay.

The teeth have softened and if refilled with gold, in a comparatively short time they begin to darken around the fillings. * * *

Now, what has brought about this change? Is it not the pulp after a period of practical inactivity again at work but now transforming the compact material, which it placed in the tooth, in a condition wherein it yields much more readily to decay? * * *

As the tooth is when the pulp is destroyed, so it must remain except as to those changes which take place through the gradual disintegration of the internal structure of all pulpless teeth. * * *

Pyorrhea alveolaris is seldom or never found in connection with young teeth; it seems to be emphatically a disease of adult life; generally middle life. It is never found in connection with devitalized teeth, where devitalization preceded the manifestation of the disease.

It should be mentined, in the interests of antiseptic purity and suffering humanity, that a good stout tooth-brush, plenty of water, and some antiseptic dentifrice, applied morning and night, afford a greater safeguard against many diseases than many people are aware.—*Sims Woodhead.*

SELECTIONS.

Tobacco Insomnia.

Many brain-workers suffer from inability to sleep. This is frequently met with among those who work late at night. The sufferers complain that they feel most lively just when the time for retiring has come, and that a long period of restlessness precedes a troubled slumber, from which the slightest noise awakens them. This is very often caused almost entirely by an over-indulgence in tobacco. They smoke just before going to bed, ignorant of the fact that not only may tobacco prevent sleep temporarily, but it may render it less deep, and consequently less refreshing. A grave responsibility attaches to those who lightly seek to relieve a symptom which is really a warning by recourse to a dangerous palliative. The inability to sleep is often merely the outcome of an unnatural mode of life, and if this be corrected the disability disappears of itself. Men who work late are commonly addicted to the tobacco habit. To them tobacco is not a relaxation after a day's work, but a nerve stimulant which enables them to accomplish tasks which would otherwise be difficult of accomplishment. When the mouth becomes dry, alcohol in some form or other is resorted to, as a fillip to enable the smoker to tolerate still another cigar or two. Under these circumstances tobacco acts as a cerebral irritant and interferes with the vaso-motor centres of the brain to such an extent that the vessels are unable to adjust themselves forthwith to the condition required for healthy and untroubled sleep. Discretion in tobacco use would save many from this distressing condition of chronic insomnia. Smoking early in the day should be discountenanced, and it is equally undesirable within an hour or so of retiring to rest. The best remedy for the tobacco habit, short of total abstinence, is to take a short walk in the open air after the last pipe. Under no circumstances should drugs be used for this form of nocturnal restlessness.—*Pacific Medical Journal*.

Children's Ailments and Household Preventives.

Some ailments of children are like a simple mechanical puzzle—obscure, complicated, alarming in their symptoms, very troublesome if mismanaged, but in their cause and explanation simplicity itself. Last week a boy was taken ill from the effects, as was supposed, of a heavy dinner. Thanks to the guiding symptom of pain the true seat of his disorder was quickly discovered, and the rectum was found to be tightly packed with the broken but unmasticated fragments of nuts, a meal of which he had recently consumed on his own account. An anæsthetic and forceps relieved him of his load, the more usual means having failed to do so. A mouth full of decayed teeth showed how, in his case, mastication was well nigh impossible. The danger allowing so much rough and hard matter in a state quite incapable of digestion to traverse the length of the intestinal tract or to become impacted at some point in it is such as even an unprofessional mind can appreciate. This case, unique perhaps in actual particulars, is one of many, some of them as clear, and some obscure in character, but all capable of much mischief and misunderstanding, which bear one common accusation—indiscretion in diet. Now it is a poisonous ice cream, now a stale fruit, now a mass of broken nuts. The inevitable question arises—Who is responsible? And its answer will usually acquit the salesman if he be a careful and fair dealer. Child and parent, therefore, must divide the blame, if any, and of the two the more intelligent will naturally have the larger share. Such cases as that above quoted should at all events impress upon parents the lesson, too little regarded, that failure to warn, and to prevent if needful, by active measures, the heedless indiscretions of their children may at any time induce, perhaps by very simple means, an illness of the greatest gravity. —*London Lancet*, August 24.

A MIXTURE of chloroform (ten parts), ether (fifteen parts), and menthol (one part), used as a spray, is recommended as an excellent and prompt means of obtaining local anæsthesia, lasting for about five minutes.—*Boston Med. and Surg. Journal*.

NOTICES.

Pacific Coast Dental Congress.

SAN FRANCISCO, CALIFORNIA, Nov. 11th, 1895.

At a meeting of the General Committee of the Pacific Coast Dental Congress, held at San Francisco on October 30, 1895, it was resolved: "That the Congress meet in August, 1897, San Francisco to be the place of meeting, and that the American and Southern Dental Associations be invited to meet in San Francisco at that time and hold a joint or separate session, as may seem best."

C. L. GODDARD, D. D. S., Chairman.

H. G. RICHARDS, D. D. S., Secretary.

W. A. KNOWLS, M. D., D. D. S., Treasurer.

General Committee.

EDITORIAL.

The Dental Colleges.

In every effort to elevate the standard of dental education by increased requirements for entrance and graduation and for an extension of time, as a requirement for graduation the objection has almost invariably been raised that it would cut down the number in attendance, and to such a degree as to cripple some, if not many, of our colleges. But what are the facts? In nearly all the colleges there is an increase in the number of students each year during the period that these advances have been made, and now that the requirements are higher than in the past, there is, in the aggregate, a much larger number of students than ever before. While the unfit are being rejected or kept away a better class of students are being attracted to the colleges, and they greatly appreciate the advancement that has

been made, and the better work that necessarily results under the improved adjustment of curricula, or schemes of study and work.

While this advance was being urged by some there were others, and some of the best men in the profession, who earnestly opposed it as being impracticable and very likely disastrous to the colleges; but when the point was carried they yielded to the will of the majority, and with one accord all the members of the Faculties Association united in the experiment, as it was called by some. And now it would be difficult to find any who would confess that they ever were opposed to it, and all now are in full harmony with the advances that have been made and are endeavoring to comply fully with the new requirements.

The schools have in no sense been injured, but, on the other hand, made better in all respects by the advances inaugurated.

While great benefit will accrue to all concerned by the progress that has been made, it ought to be borne in mind that further advance will be demanded in the not distant future; perfection is not, by any means, yet attained, and it is not possible to set, or even suggest, a limit to the advance of the future.

The man imbued with the spirit of the age will not rest content with defective methods nor imperfect results.

The means by which greater advance may be made ought to be a subject of study by every educator.

The Dental Register.

With the present number THE DENTAL REGISTER enters upon its fiftieth volume, the closing year of its half century. What it has accomplished during this time for the profession, need not here be specified, this, with any good degree of accuracy, could not be done.

The *American Dental Journal* preceded it eight years; during this interval, viz: from 1839, the establishment of the *American Dental Journal* to 1847, the establishment of the DENTAL REGISTER, there were seven dental journals established,

two in London, and five in the United States. All of these with two or three exceptions had a very brief existence. The New York *Dental Recorder* continued for ten years, from 1846 to 1856, when it ceased. Stockton's *Dental Intelligencer* was published two years. The *Forceps*, of London, England, was published two years, the other four but one year each.

Thus it will be seen that the *American Dental Journal* and the DENTAL REGISTER are the only journals now in existence, having their original names. The *Dental News Letter* was established in the same year as the DENTAL REGISTER, but after twelve years it was changed to the *Dental Cosmos*.

The American Journal was suspended from 1860 to 1867, so that the REGISTER has continued without break or intermission longer than any other dental journal in existence, having never failed in a single issue.

The late Dr. James Taylor, of Cincinnati, was the editor for the first nine years, then for fifteen years it was edited by J. Taft and George Watt; since the twenty-fifth volume it has been conducted by the present editor; up to 1859 it was issued as a quarterly, since that time as a monthly.

The aim of the REGISTER has been and is, to give matter of permanent value to the profession, and to make record so far as practicable of the progress that is being made in the various lines of developmental work.

The pages of the REGISTER are open to all contributions that are of interest and value to the profession.

At the annual meeting of the Odontographic Society of Chicago, held December 9, 1895, the following officers were elected for the ensuing year:

President, Dr. C. E. Meerhoff; Vice-President, Dr. E. R. Carpenter; Secretary, Dr. H. H. Wilson; Treasurer, Dr. Edmund Noyes.

Board of Directors: Dr. R. B. Tuller, Dr. C. E. Bentley, Dr. J. G. Reid.

Board of Censors: Dr. A. B. Allen, Dr. H. A. Drake, Dr. G. W. Schwartz.

Ohio State Dental Society.

The annual meeting of the Ohio State Dental Society was held in Columbus, on Tuesday, December 5th, and the two succeeding days; it was a very interesting and profitable meeting. There was a very good attendance; the membership not quite as large as usual, but the attendance of non-members was larger than usual, and from them there was quite an addition to the membership. A number of very good papers were read and discussed freely and fully. The subject of education was presented in rather a new aspect, in a paper by Dr. Jackman, of Cleveland, and the discussion following was of great interest.

The address of the President, Dr. Todd, presented, thoughts of special interest, which called out much discussion. Prominent among these points was that of promoting the interest of the Society—increasing its numbers, and making it more efficient. Every one present felt that he had received benefit far greater than the cost of money and time involved in coming; and five hundred more could have received like benefit had they been present, but they were not, and no one responsible but themselves.

A good part of one day was devoted to clinics, in which there were several very good things presented; among these were some electrical devices by Dr. L. E. Custer, viz: an improved electrical gold-foil annealer, which is a most admirable appliance for every one who can make the electric current available. He also presented a water rheostat for regulating the electric current; this is the most simple and efficient apparatus for this purpose we have seen, and can be afforded at a very small cost compared with the instrument commonly used for this purpose. Dr. Custer does not claim originality for this device, but he is certainly entitled to great credit for bringing it forth and presenting it in so practicable a form.

Dr. A. S. Condit, of Findlay, Ohio, illustrated a very practical method of constructing a movable bridge; the precision and efficiency of the method is better than anything heretofore presented for this purpose.

Dr. J. B. Snyder, of Bryan, Ohio, gave a clinic on the im-

planting of a porcelain tooth by means of a metal tube, first inserted in the gums and bone, and the post or pivot of the tooth inserted in the tube. Dr. Snyder suggested that bone material would be deposited around the tube and fix it firmly in place.

A case was exhibited, in which the tube, with a tooth in it, had been worn in the mouth for two or three months, and little or no irritation was apparent about it; during the clinic a tube was inserted at another place in the same mouth; the tube was set in a hole that had been drilled in the bone for it. While no one specially criticised the operation, it did not seem to inspire much faith in it, being so entirely contrary to former teachings and experience; if any success attends the method it will doubtless be heard from in the future.

The question of an amendment to the dental law was considered, and it was decided that an effort be made to secure such an amendment, and a committee is actively at work, and it is to be hoped will have the hearty support of the entire profession of the State.

Obituary.

Died on December 23d, 1895, at her home, in Nashville, Tennessee, Mrs. Sarah A. Morgan, wife of Dr. W. H. Morgan. A local paper says: "Dr. W. H. Morgan and his wife have long been two of the best known, and most highly esteemed citizens of Nashville, and the bereavement of the one by the death of the other will strike a sympathetic cord in the hearts of all their multitudes of friends."

Dr. Morgan is known, not only in his own city and State, but throughout the United States, and every where has hosts of friends, whose hearts will be made sad by this great bereavement that has come upon him. He will have the sincere sympathy of all.

May the Dr. and all the members of his family have the support and strength they now so much need, and which can only come from our Heavenly Father, who doeth all things well.

THE DENTAL REGISTER.

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FEBRUARY, 1896.

[No. 2.

COMMUNICATIONS.

Four Requisites in Development.

BY. M. F. AULT, M.D., D.D.S., KOKOMO, IND.

Read before the Tri-State Meeting in Detroit.

Continued from the January Number, Page 19.

INFLUENCE UPON FACULTY.

Let us ask next the influence of such regulation upon a faculty. A faculty certainly labors under embarrassment by having no recognized standard. Each State is fixing its own requirements. Each faculty is teaching largely at random. Each member of a faculty is left to his own option in what he teaches. I mean to say that all dental institutions ought to move around a common center. A convention of competent men ought to define the limits of anatomy, physiology, chemistry and materia medica for a dental college; this convention to take our works on operative and mechanical dentistry and select from them the best, giving full credit to the authors of the parts chosen, and this compilation to constitute the *Standard Text-Book* in these branches. Treat other branches the same, then faculties will know what to teach, the student will know what to study, and the national examiners will know what has been taught and studied, and from which source to select proper test-questions. This single standard will give uniformity, equality in recognition and respect, and all move around a national common center, instead of as many centers and standards as we have States and colleges. Under our present plan a member of a

faculty would say, "I select what I want to teach, and my students ought to have their final examination based upon the instruction given." Under our present plan the work of one chair may lap over on to the work of another chair, or repeat and antagonize the thought of a preceding lecture.

Under our present plan one department may say, "I make no effort to do certain work. I am to teach thoroughly what I do teach, and let the rest go."

Under our present plan an instructor is as tardy as he wants to be and irregular in keeping appointments, offering as an excuse that the students are glad to get out of it, or that he had other business, thus making college duty secondary to whim and private affairs.

I claim that a member of a faculty, if given a standard course to follow, would talk less, think to the point, be more prompt, and give the learner the closest personal attention, because to show that tact and qualification which is necessary to polish the student and make him feel the force of all that is said in a standard text-book would determine the reputation and value of a teacher before our highest authority. Reputation would not be left to the caprice of a class of students who seek the least resistance and the desire of a teacher to be solid with the class by being called easy. He would say, "Gentlemen, we must all work; faculty and students must all work, because the national center prescribes the amount of work to be taught, and this is to determine my reputation and your graduation. The day of talk, talk about what you please, and as long as you please upon things relevant and irrelevant, irregular as you choose, and keeping students in subjection by boasting and swelling, has ceased. The day of *merit* is at hand for all."

Now, as one engaged and interested in the daily duties of private practice, I will briefly give the dimensions of the mold in which the next graduate should be cast—of course not attempting to state the table of contents for any standard text-book:

(a) Arrange so as to eliminate all superfluity. There is too much lecturing.

(b) Selection of men who are willing to work more and talk less, and do it without lamenting that their private practice is suffering. I mean the selection of faculty.

(c) Whenever the student is well acquainted with the anatomy of the head and internal viscera, by taking the scalpel in his own hand, using his book as a guide, and a demonstrator to make clear that which is not understood ;

(d) As soon as he has applied himself to the histology of the various tissues by placing his own eye to the microscope, using his book as a guide and a demonstrator to clear up all ambiguity ;

(e) Whenever he is in full sympathy with the teacher whose knowledge of physiology enables him to reveal the forces of life ;

(f) As soon as he has seen, touched and tested the qualities of medicines used in dentistry ;

(g) Whenever he has mastered the chemistry that may have a bearing in dentistry by taking the test-tube in his own hand, with a careful leader to tell what to do and what to expect from the experiment ;

(h) As soon as he has been placed in full relation with disease about the teeth by the oversight of a careful diagnostician ;

(i) Whenever he can take instruments and material and prove that dental restoration and dental substitution is a part of his being ;

(j) And whenever (whether it be one or five years) he proves it all to the satisfaction of a central national authority, he should be graduated, and his diploma will have a value which can never be given by a fickle, sympathetic faculty—can never be given by a State Board, which is very apt to be partial to its own State, but will have the added value of national endorsement.

This being the order, we would no more see the dissecting-room a place of hilarity, irreverence and random cutting. Surrounding a body which was consigned to the tomb probably forty-eight hours before, amid the tokens, tears and agony of that well-known occasion, the student would deport himself as a representative of science, instead of being a barbarian and lost to all decency and sympathy.

This being the order, we would no longer visit laboratories and infirmaries seeing only those present who choose to be there—those that are there fumbling after something they know not what—absence of system, general irritability, the demonstrator late or absent, and the one selected for his place chosen because of excessive bravado, giving his opinions as facts, when, in reality, the big-head is all he has to exhibit.

This being the order, we will never more enter a lecture-room to hear the professor prove that *he* has a good lesson, the student dazed by fluency on ridges and tuberosities, the time wasted, and the learner injured in his effort to carry an indiscriminate mass in memory; but the instructor will guide, and the pupil will prove that *he* is the one that has his lesson.

INFLUENCE UPON THE PROFESSION.

Such a policy would certainly meet the approbation of members of the profession. A plan like this, submitted to a man in private practice, would be judged according to his first training, the bent of mind at the time the question is submitted, his insight into the need of advancement, and his capacity for grasping results. One would say: "That is so far ahead of anything that I had ever considered as practical that it stuns me." Five minutes after he would say: "It is taking root; it grows on me." One day after that: "That is the college; let us incorporate."

No method of college management should be endorsed, unless it can stand the test of common, every-day reasoning, and it requires no strain of the imagination to see that every dentist in practice would decide that that plan will guarantee—

- (a) Competency in graduates.
- (b) Extinction of professional harlots.
- (c) It will limit competition.
- (d) It will force the college to serve the profession.
- (e) It will drive the drones from faculties.
- (f) It will enable us, without blushing, to say Good Repute; and rescue us from the fatal stench which envelops us.

As a man in private practice, I ask whether a private corporation (and many colleges are such only) can conserve their own

interests and the profession's interests at the same time? A private corporation wants, on account of its need and its desire for gain, all the students it can induce to come. The profession, on account of its need and desire for efficiency, seeks restriction and the highest development. A private corporation is apt to have a passion for power, and power more often hinges on money than actual service, and we would say nothing about money if it was impossible to compromise.

The profession (in the sense in which I use the term) has a passion for uniformity of service and equality in reputation and respect, also freedom from humiliating and destructive strife.

A private corporation is legally placed at the head, and the replenishing of our ranks is left to its will; it holds the key which locks and unlocks the door through which every entrance is made into our domain. State Boards cannot control, because they are, too often, a part of the corporation.

The profession has the unquestioned right to think, and this inherent right should be freely used in investigating methods, policies and motives before becoming an instrument in securing legal enactment for a private institution, or recommending a student to a college with questionable regulations.

At present, if one hundred young men decide to follow our vocation they expend thirty-two thousand dollars for information before they can feel within the pale of security. Are they safe? Does their information fortify? Is the highest and best vindicated? Or does a retrospection mortify? Now, have I conveyed the idea that our colleges are not performing their function, *i. e.*, furnishing the various communities with men who know they are skilled and without tremor of hand, huskiness of voice or beaded brow can secure confidence—men who can convince an old practitioner by showing diploma that help can be employed without feeling that a burden has been added to the office? When a man employs help he wants to feel a transfer of responsibility, and the presentation of a diploma ought to be a sure guarantee that the required help can be found in the owner of the diploma. I mean, then, to assert (being also able to prove) that our present college system is not performing its func-

tion, basing my assertion on, and finding my proof in the self-evident truth that *only thoroughly reliable men, should be holders of diplomas.*

I hold that much more can be added to our professional interests than the usual disbursement of thirty thousand dollars secures. I must earnestly recommend a merit system applied to both student and faculty, and a National Board to sit in judgment. This is perfectly feasible, and all that is required is a voluntary acquiescence on the part of colleges, or for the legislatures to take the entrance and final examinations out of the hands of interested persons. As I write this, a recent New York enactment is handed me. May 11, 1895, the governor approved a law which makes dentistry an integral part of medicine. It provides that after 1897 a full high school certificate, or its equivalent, shall be necessary for admission, and places the entrance examination under the Board of Regents of New York University and final examination under the State Examining Board. I mention this to show that my fourth requisite is not extreme in its requirements as to admission, and leads in the method of determining fitness for graduation.

THE NATIONAL REGENTS OR EXAMINERS.

What principle should govern in creating this body? I think the idea that the profession is supreme to all other interests. Let it be understood that the profession is one thing, and colleges and personal matters are positively other things. Personal interest must be made to serve, and colleges be subordinated to professional management.

The *State associations* belong to the *profession*, and should always be over the *college*. The State association and college should work together—the association governing and the college filling only honorary positions; *i. e.*, the association should furnish the college an opportunity to prove to the profession that there is reason for its existence. This would tend to make associations popular and assert their natural rights, and out of it would spring the influence and power to create and sustain the national authority by popular methods and the democratic principle of governing. To recapitulate—the novice, college, pro-

fession, professional, and people constitute the elements of dental experience, and the foregoing comment places the college in the very responsible position of determining the future status of dentistry. A port, if properly fortified, prohibits the landing of an enemy; but if the walls are low and the garrison small and poorly equipped, plunder and devastation are sure to follow. This is the relation of the college to the domain occupied by our brethren. Every one who entered the French pavilion at the Exposition was certainly impressed with "The Guardian Spirit of the Secrets of the Tomb," and each, as he looked upon the powerful arm which embraced the urn of ashes, had his own revery and made his own application. After placing myself in full sympathy with the sentiments of the sculptor, I thought how truly, also, is this a symbol of educational institutions. The guardian spirit is the faculty, the urn the receptacle of God's mysteries; but in this the spirit must lift the lid and invite the inquirer to view the beauties within.

Dental Examining Boards in the United States and Preliminary Education.

BY G. CARLETON BROWN D.D.S., ELIZABETH, N. J.

Read before the Central Dental Ass'n of Northern New Jersey, Dec. 16th, 1895.

Mr. President and Members of the Central Dental Association:

At the request of your Executive Committee, I, in a moment of weakness, agreed to read a paper to this society on Examining Boards, Dental Education, or something of that kind. I had no sooner made this fatal error than our ubiquitous Chairman of the Dinner Committee and General Poo-Bah, Dr. Meeker, appeared upon the scene and demanded the title of the paper. As I had not the slightest idea what I was going to say I could not think of a title, so I told him to call it anything he pleased. Then I had to wait until the programme appeared, to find out what I was to write about; when I did find out it struck me

that the title gave me license to talk about almost anything, so that a general *pot-pourri* on Dental Education is the result. I trust you will excuse the crude form in which it is served.

A resume of the question in regard to the influence of examining boards, on dental education, would necessarily become a history of the advance of modern dentistry, and, in saying this, and in claiming a large share of this advance for the examining boards, I do not mean to detract a particle from the great work that has been done by the colleges; to them, first and foremost, belongs the credit for the advanced standing of the profession of dentistry to-day. But, I greatly doubt whether the colleges would have attained to their present standing, or have demanded the high standard now required of graduates, if it had not been for the examining boards. There are several ways of looking at why and how this influence came into existence, but, I think, the most rational is, that the colleges are not working entirely from a philanthropic standpoint, while the examining boards are. The colleges are pecuniarily interested in their work and are, of course, striving to make all the money they can, and, in some cases, more than they have any business to make; but, as Rudyard Kipling says: "That's another story." While the members of the examining boards are sacrificing much time, and in nearly all cases are spending their own money to elevate the standard of their profession, and this without the slightest chance of any pecuniary benefit to themselves.

These facts being accepted, with the further statement that in spite of the antagonistic attitude assumed by some of the colleges toward the boards, the latter have none but the kindest feelings to the colleges, and when they make criticisms and suggest certain reforms, it is not because they love the colleges less, but their profession more.

The elevating of the standard of dentistry demanded by the profession must be done, to a great extent, through the educational mediums, and as public institutions they are certainly open to criticism if they fail to properly equip their graduates.

Any one who has been an unprejudiced observer of the changes in the teachings of the schools and the character of the

material turned out since the establishment of the State examinations must admit that the boards have had an influence on the colleges, and, in many instances, have been the means of procuring for the student a higher and better education; this being the case, is it not the duty of the boards to continue the work by pointing out the defects which still exist and by suggesting reforms?

The only question that now arises is: Should these discussions be confined to the national associations representing the colleges and the boards, or should the matter be openly and freely discussed by the profession at large? I consider the latter the proper course; hence this paper.

A few years ago it seemed the fashion for a man when he thought he could not make a success of anything else to either enter the ministry or take up dentistry as a profession. If the latter were his choice, the mere fact that he had neither the preliminary education that would enable him to receive and assimilate the scientific and theoretical teachings of the profession did not enter into the question any more than did the fact of whether he had the requisite amount of mechanical adaptability.

The colleges recognize this state of affairs by theoretically requiring a preliminary education; I say theoretically, for what they actually require hardly deserves the name of education.

In making these charges I do not say that some schools may not give a proper preliminary examination, but I do know that the examination, if it exists at all in certain schools, must be a perfect farce. In making this statement I know I shall be borne out by members of any examining board who require a written examination. I will give you a few illustrations to demonstrate the point. These illustrations are taken from the papers of recent graduates and are exactly as written, none being selected unless plainly written so that no mistakes could be attributed to defective penmanship.

Q. What relation to dental caries do the micro-organisms bear?

A. Dental caries is a destruction of the tooth substance

which is hard and micro-organisms is effect the soft parts of a body.

Q. What acid is produced by the micro-organisms?

A. Toxic acid is produced by the micro-organisms.

Q. How?

A. By the action of them upon the soft tissues, these be open.

Q. What is plethora?

A. Is a disease of the pleura.

Q. What is disease?

A. Is the disturbance of the equilibrium or preversion of circulation.

Q. What is fever?

A. The rising of the temperature caused by too much blood in a part.

Q. What is shock?

A. Shock is the sudden checking of the nerves caused by accident.

Q. What is the difference between a narcotic and a hypnotic?

A. Narcotic acts on part the small intestines. Hypnotic acts on the whole large intestines.

Q. What are the stages of anæsthesia?

A. Drowsiness, sleepy feelings, long breathing, stiffness of muscles and relaxation of the parts.

Q. What are the effects of inhaling nitrate of amyl?

A. It produces drowsiness.

Now, as to a student's mechanical adaptability. Granted a first-class education and the receptive qualities necessary for a good scientific education, of what avail is it if he "hasn't it in his fingers," as Dr. Eaton has so tersely expressed it. He will never make a dentist, and of this fact the colleges have, as yet, taken no notice. They might, perhaps, refuse to graduate him at the end of his three years' course even if he stands first in his class in theory; but, would they do this? And if they did, would it not be pretty hard on that student? But, is it not worse to have an incompetent man turned loose upon the public?

And here is where the examining boards come in again. As our friend and fellow hornet, Prof. Flag, says: "The board steps up and says 'hold!' and the young man steps out into 'innocuous desuetude' with three of the best years of his life wasted."

This is certainly hard on all concerned, the boards, the college and the student. But, hard as it may be, the boards must do their duty as State officials and servants of the public. There is no question about its being hard on the student; the college from which he graduated should feel a twinge of remorse for having taken his money and time and failed to give him what he has paid for. They (the colleges) may have done all in their power, but if the student did not "have it in his fingers" to start with, all the colleges in the country could not have given it to him; their mission being only to develop. Where is the remedy? Many, I am sure, must have given the subject thought, but the first practicable suggestion that I have seen comes from Dr. Crouse, who says: "A young man may be bright, a good student and well-grounded in the classics, and yet, any attempt to make a dentist of him would destroy his usefulness in life, make him a detriment to the community in which he practiced and not a credit to the dental profession. Therefore, the first six weeks of the college course should be spent in finding out who are properly qualified by nature as well as by training to be dentists, and those who are not fit should have their fees refunded and should be persuaded to select a more suitable calling in life. In short, the "plucking" should be done at the beginning of the college course rather than at the end." Here is something for the faculties to think about, and by adopting some such system they will save the boards many unhappy moments.

And while they are occupied with this subject it would be well to look more carefully after the training of the students in the practical departments. It is a noticeable fact that since the increase of the term of pupilage, from two to three years, while the scientific and theoretical knowledge of the graduates have increased to a marked degree, the practical has not only failed to keep pace with it, but has actually decreased. Are we, as a

profession, sacrificing the practical to the theoretical? Whoever are leading in this matter, the profession or the professors, damage is being done and a halt should be called.

According to the reports given by students the means and apparatus in some of the colleges for pursuing the practical studies are absurdly inadequate; in some instances there being only one blow-pipe for the use of several hundred students, with, in many cases, no chance of obtaining instruction in its use even then; the demonstrator, so-called, being engaged in the more important (?) work of looking after the business part of the insertion of artificial dentures for a consideration, said consideration, by the way, netting a good round profit to the college. In fact the colleges seem to be giving instruction only in the direction in which there is a direct pecuniary benefit to themselves instead of educating the student to a higher standard of general proficiency in mechanics.

I have had graduates tell me that the case they soldered before the examining board was the first piece of metal work they had ever done, and one man acknowledged that he had never had a blow-pipe in his hand before. The colleges may say that this evidence is not trustworthy, as it comes from men, who, after having made a poor piece of work for us, are trying to throw the responsibility on the colleges; this might have more weight if it were not for the fact that the story comes from so many different graduates, and is so amply corroborated by the work they do at the examinations. If you will carefully examine the specimens which I herewith submit, I think you will come to the conclusion that there are reforms needed in this direction. The accompanying specimens have been selected and mounted by Dr. Barlow—who has charge of the mechanical department in the New Jersey board—from work done within the last year, as part of the practical examination required from each applicant.

Have the men who did this work received a proper education to enable them to practice dentistry?

I think this will prove to your satisfaction, that in some cases, the practical side is being sacrificed to the theoretical. That others have noticed the same thing is shown by the follow-

ing extract from the report of the Committee on Practice, of the New York State Society, read at Albany, May 8th, 1895. "Our institutions of learning should take heed that the manual skill of their graduates does not suffer on account of increased theoretical training."

The colleges may claim that every student has to submit a satisfactory piece of metal work as part of his examination, and a pre-requisite to graduation; true, but do they inquire carefully into the question of who made the piece? That, however, is part of the other story I am coming to later.

Leaving the mechanical department for the operative, we perhaps find an improvement. But, does not the effort to swell the educational treasury over-balance the educational features? Are not many teeth, that by proper treatment could be saved, sacrificed to make way for other work that would pay better, thus doing injury to the patient and depriving the student of an important means of education? How many students, when they graduate, are really competent to contend with the complicated cases of pulpless or abscessed teeth?

If any of you will stop and think of the many difficulties you have had to contend with and master for yourselves, since you commenced active practice, that could have been greatly simplified by proper instruction from a demonstrator during your collegiate course, you will better appreciate the point I am trying to emphasize.

Is it not just as important that there should be a competent corps of demonstrators as of lecturers? Now, as a rule, there is one head demonstrator, whose duty it is to apportion the patients and handle the gold and cash: these occupations leaving him little time to assist and advise the students in their work, these latter functions being left to under-graduates who are appointed assistant demonstrators. If the colleges would provide a sufficient number of first-class demonstrators to be constantly on hand during clinic hours, in order to personally instruct students in the correct diagnosis and treatment of cases, the percentage of failures before the examining boards would be materially decreased. These remarks will apply equally well to either department of the practical education in our institutions.

While on the subject of college clinics, I cannot resist again alluding to the matter of fees. The system employed in many institutions of having fixed prices for operations places them on a par with the so-called "associations" which have done so much to lower the standard of dentistry in the public mind. In both cases the bulk of the work is done by inexperienced and incompetent men; in the associations, because that kind of help comes cheap, and in the colleges, because the workmen are students. These methods have taken away any right which the clinics might have once had to be called free.

One means of cementing the colleges and the profession more closely together would be for the former to return to the old method of simply charging for the material used, and making the clinic a dispensary in the true meaning of the word.

The method of procedure, in the mechanical examination before the New Jersey board, is as follows: Every candidate is required to make a metal plate, band it, grind and back the teeth and invest ready for soldering, before the board. Sometime since, it became apparent that in a great many instances the character of the preparatory work and the final soldering differed so markedly, that it was impossible that the same person should have done both. This led to an investigation, and it was found that there were persons who made a regular business of supplying students who were to appear before the board, with plates ready for soldering; it was also found that these same persons were in the habit of making the graduating cases for students in the colleges, charging them different prices, according to style and finish. The board met this difficulty by requiring each applicant to make an affidavit stating that he did all the work on his plate himself, without assistance from any one.

The fact that a student can buy a plate, present and have it accepted as his own work in college, certainly confirms my previous statement as to the lax way in which the clinics are conducted. A demonstrator in the mechanical department certainly should know whether a graduating piece was made in the college laboratory or not. But, worse even than this comes the report, that in some cases the demonstrators have themselves made these plates for the students, they, of course, being paid for the same.

Another reported condition of affairs in one of our colleges seems to me, if true, to deserve such unqualified disapproval from the profession, that a continuance of such practice will henceforth be impossible. It is, in short, that a certain dental house holds such a large interest in one of our colleges that the students say they dare not buy instruments from other houses, because by so doing they would jeopardize their chances of graduating. If this report is true, taken in connection with the other matter which I have laid before you, is it not time that the profession at large insisted on knowing more about the way in which our institutions are conducted; and, where reforms are needed, insist on their being not only introduced, but lived up to?

In conclusion, I wish to state that no charges in this paper have been aimed at any particular college—the defects mentioned being distributed among the different institutions; there are some, however, that may perhaps lay claim to all. On the other hand, there are certain colleges to which these criticisms are in no way applicable.

Let the profession, the colleges and the boards unite their forces and work together in this matter, and a higher standard is bound to result.

Southern Dental Association.

REPORTED BY MRS. JENNIE M. WALKER, BAY ST. LOUIS, MISS.

The Southern Dental Association held its twenty-sixth annual meeting at Atlanta, Georgia, November 5th, 6th, 7th and 8th, 1895.

The meeting was called to order at 11 A. M., with the President, Dr. H. E. Beach, of Clarksville, Tennessee, in the chair.

After prayer by the Rev. I. B. Robbins, and a brief address of welcome from Dr. Frank Holland, of Atlanta, the President read his annual address. He drew a beautiful parallel between the gigantic strides of material progress made by Atlanta during

the past twenty-six years, and the equally wonderful strides in scientific advancement made by the Southern Dental Association during the same period. The leading thought in the address was the importance of seeking, in the discussion, to reach definite conclusions that could and would go out as authority. The people, as they become better educated in regard to dentistry, demand a reason for what we do, and if we could give the conclusions that have been reached after full and free discussions in this body, it would be an authority of the highest order, especially in the settlement of legal questions. He suggested, therefore, that some plan be agreed upon by which the conclusions arrived at might be formulated and recorded in a manner easy of reference. This he considered especially necessary in regard to the demonstrations made in the clinics, in order that the Association might either endorse or reject the demonstrations. One advantage in the latter regard would be to do away with the unprofessional *advertising* sometimes done through clinics. Matters deemed of sufficient importance, presented in the clinics, might be referred to an appropriate committee for investigation, to be reported upon subsequently, thus enabling intelligent action on the same.

He spoke of the lamentable facts, admitted by every one who has been through a dental college, that every class has its class theories—that it is not safe to leave anything worth having, laying around where it can be appropriated. If a student will steal instruments and materials from his classmates, what may not be expected from him in his dealings with his patients and with the public? Though he may be educated mentally to the highest possible standard, morally he will be the same. Means should be devised by which the *good* might be weeded out from the *bad*, before they are licensed to practice their evil desires for gain upon a trusting public. Let not the colleges give to the profession men that are untrustworthy, then will a new era begin to dawn.

In view of the expressed determination of the President of the American Association, that, “even if the Southern Association does not come in, we will make the *American Dental Assoc-*

ciation thoroughly and genuinely, not only in name but practically, the society that shall pass upon all questions of ethics, and other questions that should be adjudicated by the whole profession" (Cos. May, '95, p. 447), he said that admitting as a condition greatly to be desired that there should be an organized body of American dentists, qualified and having the authority to act officially in such matters, he could not agree that either the "American" or the "Southern" or any other Association as now organized should assume to itself the prerogative of legislating or prescribing rules to govern the profession at large. He then proceeded to outline a national organization which should be to the dental profession what the United States Senate is to the American citizen—the membership to be representative through election by State Societies in proportion to the number of registered dentists in the State; such a body to meet annually, being elected, with authority to formulate rules ethical, legislative and judicial, and to adjudicate all questions referred to it concerning the dental profession. The members of such an organization should be elected for one year and be eligible for re-election as long as their actions were approved by their constituency. Such a body of men, coming fresh from every section of the country, would be better qualified to represent the wants and necessities of the whole profession than any organization composed of a membership whose sole qualification is the payment of his dues.

The American Association having appointed a committee of five to confer with a similar committee for the Southern Association with a view to the consolidation of the two Associations, the President recommended the appointment of such a committee.

The President's address was referred to a committee of three, with instructions to report back to the Association the points deemed most worthy of discussion.

After a reading of the minutes of the last annual meeting by the Secretary, Dr. S. W. Foster, and roll-call and collection of dues, the Association adjourned to 3 o'clock P. M., when the report of the committee on Operative Dentistry was called for. The Chairman not being present, the subject was passed for the

time being, and report of committee on Prosthetic Dentistry called for. The Chairman, Dr. R. K. Luckie, announced a paper by Dr. W. E. Walker, of Pass Christian, Mississippi. Dr. Walker then read a paper entitled: "The Glenoid Fossa; the Movements of the Mandible; the Cusps of the Teeth," of which we give a synopsis:

Without repeating what is found "in the books" on these topics, he referred to the statement generally made, that the movement of the condyle in the fossa is invariably described as "forward." For reasons to be given he was led to close observation on this point, and found that the movement is really a combined "forward and downward" movement, due to the incline or slant of the roof of the glenoid fossa of the condyle, both in its anterior and lateral excursions, traversing a course forming an angle on an average of about 35° to a line perpendicular to the facial line, or of about 55° to the facial line. The condyle, not swinging directly from its upper surface, but as though pivoted in an imaginary slot about fifteen millimeters above its upper surface, all of the condyle above this point moving forward, while all below it (the ramus) swings back, in opening the mouth, the peculiar articulation of the mandible gives it a back and forward rocking motion, and also a swinging or see-sawing motion from side to side in taking the position affording incising and the grinding articulation of the teeth in mastication. These movements, as also the articulation of the teeth, cannot be studied from the naked skull, as the glenoid fossa is then emptied of its intro-articular fibro-cartilage, its double synovial sacs and its membranes, leaving a space between the upper surface of the condyle and the roof of the glenoid fossa, so that when the condyle is thrown up in the socket the teeth fail to articulate, though they occlude correctly when in the position of rest. These movements must be studied either from the living subject (selecting as their accommodating subject with no superfluity of flesh), or from a properly conducted articulator, which shall permit a perfect reproduction of all the movements of the mandible, including the "downward and forward" course traversed by the condyle, with the consequent drop of the ramus, influen-

cing the articulation of the teeth in the varied positions of the jaw.

The movement of the condyle constitutes an important factor to be borne in mind in studies of the articulation of the teeth, as for the shaping of artificial cusps, whether in filling, crown-work, bridge-work or plate-work; in the study of the natural cusps, with a view to bettering the articulation, both in the treatment of pyorrhœa alveolaris, and in orthodontia; in the study of diseases of the facial muscles, or of the glenoid fossa, etc.

He said that he was first led to the study of the subjects named in the title of his paper from meeting with unsatisfactory results in the use of the Bonwill articulator, articulating artificial teeth by the rules laid down by Dr. Bonwill, the articulation of the teeth in the mouth not being the same as in the Bonwill articulator, the occlusion, however, being as perfect and the same in the mouth as in the articulator.

Seeking the cause for this difference in articulation, he began the study of casts or models of the natural teeth placed in the Bonwill articulator, finding that while occlusion would be perfect, he could not reproduce the normal points of contact of the cusps in the different portions of the jaw as found in the mouth from which the casts were taken. Having verified this observation from the study of casts of a large number of as nearly normal teeth as we meet with, studying the articulation of the cusps, both in the mouth and from the casts in the Bonwill articulator, careful experimentation showed that the right angle found in that articulator at the junction of the parts representing the ramus, and the condyle moving in the glenoid fossa, was the cause of the defective articulation; a Bonwill articulator remodeled in such a manner as to raise the portion carrying the spiral springs until the angle was increased an average of thirty-five degrees, permitting the correct articulation of the teeth of a large number of models, in any position in which the lower jaw, either of the mouth or of the articulator, can be placed, whether as for "biting" or as for "grinding," either on the right side or the left. Artificial teeth having the cusps modeled, or the natural teeth so remodeled, would also articulate correctly in the mouth.

The articulator so remodeled he christened the "Walker-Bonwill" articulator.

Further experiments showed, however, that it was necessary to have an *adjustable angle*, to meet the variations from the average (or what might be termed *the normal*) ranging from 30° to 45° ; an extreme case of irregularity registering as low as $22\frac{1}{2}^{\circ}$.

The articulator constructed with the adjustable angle, with set screws to secure it and gauges to register the degree of the angle found in individual cases, which sometimes varies even in the two sides of the same face, with a further modification enabling the correction of "a wrong bite," constitutes what we have called the "Walker Physiological Articulator," because it is not only automatically but also physiologically (that is functionally) correct throughout.

Seeking the cause of the peculiar features in the articulation of models of the natural teeth, in the movements described by the lower jaw of the reconstructed articulator, led to the discovery of the *downward* as well as "forward" movement of the condyle in the antero and lateral excursions of the mandible, and also in opening the mouth; which, so far as he has been able to ascertain, has hitherto escaped observation, or perhaps not been deemed of sufficient importance to be placed on record in the literature of human anatomy. Its practical importance to the dental specialist has been indicated.

To reproduce with artificial teeth the articulation of the natural teeth, in order to give the grinding and biting functions to artificial dentures, instead of the usual up-and-down *mashing* action of full dentures with nearly cusplless teeth, led to the minute study of the cusps of the human teeth, both in the mouth and from models and their inter-articulation. This led to the discovery of what might be called the law of the cusps, the variation in the distance from the base of the sulcus to the point of the cusp from the main lower cusps of the second bicuspid increasing distally in the superior lingual cusps and the inferior buccal cusps, conversely decreasing distally in the superior buccal cusps and the inferior lingual cusps.

This is most clearly seen by placing the model of a perfect

a set of natural teeth as can be obtained, *cusps downward*, on a clear slab of glass, bringing the successive pairs of teeth under observation to the edge of the glass, where the relative height of the cusps will, as a rule, be found as stated.

A chart was exhibited showing Dr. Bonwill's rear view of the articulation of the molars in the masticating position, with *all the cusps*, upper and lower, buccal and lingual, *on the same plane*, as found in Harris' Principles and Practice, 12th ed.—and also as reproduced in the chart found in Trans. W. C. D. Congress, 1893—all showing the relative position of the same level-cusp lower molars in the normal drop of the ramus, preventing contact of any but the buccal cusps on the masticating side, with no contact on the opposite side—the chart showing finally the normal superior short buccal cusps on the same plane as in Dr. Bonwill's diagram, with the longer superior buccal cusps on the lower plane, met by the lower buccal cusp in “balancing occlusion” on one side, notwithstanding the drop of the ramus, on the masticating side the short superior buccal cusp on the plane first shown being met by the long inferior buccal cusp, the long superior lingual cusp on the lower plane being met by the short inferior lingual cusp.

This articulation of the cusps, which is reproduced in Walker's Physiological Articulator, gives the artificial teeth the cusps essential to the grinding and biting function in mastication, whether with natural or with artificial teeth.

Another diagram farther illustrated the “law of the cusps” in the superior teeth showing the short lingual and the long buccal cusp of the first bicuspid, the nearly level cusps of the second bicuspid and the gradually lengthening lingual and decreasing buccal cusps of one side of the mouth, the reverse condition being found in the inferior molars. He also pointed out the fact that the difference in the planes of the buccal and lingual cusps is really greater in the mouth than appears on holding a tooth out of the mouth with its long axis vertical, as is seen in the usual book illustrations, the inferior molars in the mouth leaning lingually, and the superior molars buccally, increasing the apparent height of the cusps which are raised by

their inclination from the vertical, and conversely decreasing the apparent height of the cusps which are lowered.

As the superior lingual and the inferior buccal cusps increase thus in length as we proceed distally, interference of the cusp's lateral movements of the mandible would be inevitable were it not for the drop of the ramus caused by the condyle not only moving *forward* but also gliding *downward* on the slant of the incline of the roof of the glenoid fossa.

The articulation of artificial teeth with cusps indicates the use of an articulator which provides for the downward motion of the condyle and the consequent drop of the ramus preventing interference in the cusps. This, it is claimed, is done by Walker's Physiological Articulator.

DISCUSSION.

In the discussion which followed the reading of this paper, Dr. B. Holly Smith commended the nice, clear distinctions made in minute particulars, and pronounced the views rational, being convinced that the conclusions were correct.

DR. L. P. DOTTERER thought that patients were better satisfied with teeth without cusps, there being less liability of tilting the upper plate, or of knocking about the lower plate.

DR. J. Y. CRAWFORD said that the paper contained much that was new, and many valuable suggestions. He felt sure that the writer was correct in his description of the true movement of the condyle, and in his conclusions. He was particularly pleased with the prominence given to the upward distal curve, considering that to be an important point in the construction of artificial dentures. He considered a careful study of the articulation of the teeth to be very important, not only in the construction of artificial dentures, but also in giving proper occlusion to fillings. He had not recognized the necessity of cusps for artificial teeth, as much of the food now used can be prepared for swallowing by the mashing process of ordinary dentures. There will always be a difference between the manner of using natural and artificial teeth. The results attained by the writers of the paper have, however, important practical bearings in other directions than in the construction of dentures.

DR. DOTTERER asked Dr. Walker if teeth for full upper and

lower plates could be so perfectly articulated as to require no retouching when placed in the mouth?

DR. WALKER replied that as gum sections, though very nicely jointed in investing, may be displaced in vulcanizing, so there was even more liability of plain teeth becoming displaced, necessitating slight touch with the stone, but *in the wax* they could be made perfect, as described by Dr. Dotterer.

In closing the discussion, Dr. Walker said that as insalivation is important and mastication essential to insalivation, cusps were as necessary in artificial as in natural teeth; that artificial teeth could be so articulated with an articulator providing for the drop of the condyle in the movements of the jaw described in the paper.

Subject of Prosthetic Dentistry passed.

There being no other paper on prosthetic dentistry, "Operative Dentistry" was again called, and,

DR. GORDON WHITE, Nashville, Tenn., read a brief paper on "Capping Pulp."

His method is as follows: The patient first rinses his mouth well with water as hot as can be comfortably borne, to which has been added a little alcohol or a few drops of some antiseptic. The cavity is then washed with warm water and excavated as usual, wiping out occasionally with a pledget of cotton saturated with chloroform. A paper disk is then dipped in chloroform which, after evaporation, leaves the paper sterilized and of its original stiffness. A chloro-percha solution is made having fifty grains of aristol to the ounce of chloroform. A very small portion of this solution is placed on the disk, and the cavity having been wiped out with chloroform, the disk is inverted over the point of exposure and gently pressed to place. Thin cement is flowed over this, and the filling inserted, when the cement has hardened. In over a hundred cases capped in this manner during the past four years, there have been only five failures—two of which were hopeless cases from the start and tried only as an experiment—in one of the others pulp stones were found. In conclusion DR. WHITE said that he considered capping the dental pulp, when properly performed, to be quite as successful as the average dental operation.

In the discussion of the subject, DR. McKELLOPS gave a method with which he has had very satisfactory results. The caps cut from asbestos foil, the material being iodoform and glycerine.

DR. J. Y. CRAWFORD emphasized the importance of differential diagnosis, considering the condition and the age of the patient, of the tooth and of the surrounding tissues. He considers non-sensitiveness of the dentine a pathological signal which must not go unheeded. In some cases, if aseptic pads, as described, are placed over the point of exposure and cement flowed over, the pulp will reassert itself, and through its renewed vitality sensitiveness will be restored to the dentine, but if this is not the case within from twelve to twenty-four hours, the tooth will inevitably give further trouble, sooner or later.

DR. BOOZER considers it important to place one of the balsams over the pad before inserting cement, as the fluid contents of the tubuli—diastase—will decompose the cement and cause the loss of the pulp.

DR. JNO. S. THOMPSON cuts the disk from the portion of an envelope containing mucilage—the United States Government using only a pure antiseptic dextrine paste. He moistens the gummed side on the tongue or lip of the patient and applies directly to the point of exposure.

DR. C. L. BOYD never caps a pulp, if the dentine is non-sensitive above the cornua of the pulp. By observing this rule he has success with ninety out of a hundred cases. He considers aristol very useful in connection with oxide of zinc for this purpose, being very careful not to have any pressure on the cap.

DR. L. M. COWARDIN does not expect success in capping pulps when the pulp is in a pathological condition, for anatomical and histological reasons. In the case of a first permanent molar, exposed before the root is complete, it is very important to make every effort to save the pulp, but after the tooth is fully formed he has little hope that a diseased pulp will ever perform its physiological functions again.

DR. T. M. ALLEN thinks there is little hope except in case of fresh accidental exposure.

The Association adjourned at this point of the discussion.

Tuesday night a session was held devoted to a stereopticon exhibit and lecture, by DR. M. H. CRYER, of microscopic slides of sections of the maxillary bones.

Wednesday morning was devoted to clinic.

Wednesday afternoon, DR. W. T. ARRINGTON, Memphis, Tenn., read a paper entitled "Soft Foil and Conservative Methods of Filling Teeth."

DR. ARRINGTON's arguments in favor of the use of "Abbey's old-fashioned soft gold" were so convincing, that in the discussion which followed, several expressed a determination to go home and get some and try it at once.

The paper and the subject was discussed by Drs. Beadles, G. F. S. Wright, L. G. Noel, and T. M. Allen, until the time arrived which had been set apart for the discussion of the points recommended for discussion by the committee.

The subject of the appointment of a committee of five to confer with a similar committee from the American Association in regard to a proposed consolidation of the two Associations—Southern and American—forming a National Association, brought out the expression of a strong sentiment of disapproval of the proposition. After some discussion it was agreed to appoint the committee asked for, further discussion to be postponed until after a report from the joint committee, no definite proposition having been submitted.

Drs. L. G. Noel, J. T. Calvert, Fr. Peabody, E. T. Beadles and J. R. Knapp, were appointed on the committee.

The subject of "Operative Dentistry" was again opened for discussion.

DR. CRAWFORD spoke of the experiments of Dr. W. D. Miller in testing the antiseptic qualities of various filling materials, only those containing copper, and Abbey's soft gold, *which had not been exposed to heat*, standing the culture test. Exposure to red heat seems to destroy some subtle quality, "a something," which gives it antiseptic qualities, so that sections of old teeth filled by Maynard, Badger, etc., thirty and forty years ago, still retain the antiseptic influence of Abbey's soft gold.

This appeared paradoxical to Dr. Peabody who quoted the Good Book as to "purifying by fire."

DR. W. E. WALKER referred to the paper of Dr. Gordon White, and spoke of two varieties of non-sensitive dentine found in cases of mass pulp-exposure. In one case the dentine will be of more than normal hardness, apparently due to infiltration with lime salts—a not unfavorable condition. In the other variety the dentine will vary in color from nearly normal to a dark gray, and will be found very soft under the instruments, and the tubuli filled with decomposing matter. On reaching the pulp there will usually be found what might be termed a pocket of pus and gases. In cases of this class hot applications cause pain through the expansion of the gases and consequent pressure upon the living portion of the pulp. He spoke of the division suggested by Dr. Harlan, of subjective and objective stages. These varying conditions illustrate the importance of differential diagnosis. DR. WALKER also spoke of the importance of a knowledge of temperament in diagnosis for pulp treatment; the value of studying the patient as a whole, habits of life, occupation, etc. Persons of the nervous temperament are much better subjects for pulp-capping than those of the lymphatic temperament, the latter, on the other hand, being better subjects for pulp devitalization.

DR. NOEL and DR. PEABODY spoke of the value of copper amalgam in filling children's teeth, its antiseptic qualities in these cases more than balancing its lack of durability.

DR. R. C. YOUNG asked for advice in dealing with devitalized deciduous teeth, in order to retain them until the proper time for them to be lost.

DR. WALKER said that he had very favorable results from filling them, as recommended by Dr. Cravens some years ago, with phosphate of lime, cleaning the cavity and the root canals as thoroughly as possible, in dealing with very young patients, taking the usual antiseptic precautions, filling the root canals with phosphate of lime in the magma state, working into the soft mass all the dry phosphate that it will take up, and filling the cavity with cement, gutta percha or amalgam as desired. This root-canal filling offers no obstacle to the incoming permanent tooth.

DR. J. Y. CRAWFORD emphasized the importance of keeping a devitalized tooth, after filling, non-antagonized, by grinding off the morsal surface at intervals as needed, until the bifurcation of the roots is reached, supplementing absorption by exfoliation.

The subject of pulp capping was further discussed.

DR. S. E. C. WATKINS would make very careful discrimination in the choice of cases, but would cap all freshly-exposed pulps. He spoke of the advantages of oil of cloves over creosote, as not coagulating the surface of the exposed pulp.

DR. R. D. ADAIR thinks it not justifiable to destroy a living pulp. He would give all but very desperate cases a chance to live by capping; if they die the tooth is no worse off than if the pulp had been killed in the beginning, and there was the chance that it might perhaps live.

DR. ARRINGTON closed the discussion on Operative Dentistry and the Association adjourned.

The Association was called together again at 7:45 Wednesday night.

DENTAL EDUCATION.

DR. W. E. WALKER, Pass Christian, Miss., read a paper entitled "Ought the Dentist to be a Graduate in Medicine?"

Answering the question in the affirmative, DR. WALKER brought forward an array of arguments sustained by quotations from the dental journals. The first point made was that in order to save diseased teeth it is necessary to put the surrounding tissues in a healthy condition, as thorough a knowledge of medicine being necessary for the treatment of the oral tissues, as for the treatment of the eye, the ear, or the nose. As the ophthalmologist, the otologist and rhinologist must all be medical graduates, why not the stomatologist also?

Again, in the treatment of patients for oral and dental disorders, it is frequently necessary to administer, both internally and hypodermically, medicaments of which we would have a much more thorough knowledge in their effects upon the general system after a full medical course than we have after a course in dental *materia medica*, and dental therapeutics. A knowledge of temperaments, temperature, pulse, etc., is as essential to the stomatologist as to other specialists in medicine.

He cited cases both from the dental journals and from his own practice, showing the necessity for this knowledge of medical science in dental practice.

Admitting that the M. D. degree is of importance to the D. D. S., both for the medical education it implies and for the legal protection it affords, his next question was: 'When shall this degree be obtained? After the D. D. S., before the D.D.S. or simultaneously?' "

Experience has shown that the medically-trained man does not usually make a skilled practical dentist for the reason among others that his manipulative faculties have been neglected until too late in life.

As the skilled pianist begins very early with finger-exercises, so should the dentist be early trained in the acquirement of that nicety of touch—that manipulative ability so essential to the skillful dentist. The ideal course would be the simultaneous course of medical and dental education, with time set apart for the cultivation of the special faculties of the practical dentist. Such a course should entitle to the combined M.D.-D.D.S. degrees, for which DR. WALKER suggests a new degree, S.D., *Stomatologic Doctor*—doctor of stomatology—a degree which would imply more than M.D., more than D.D.S., it would imply both in one—the knowledge of the M.D. and the skill of the D.D.S., necessary for the mouth doctor. It would be a degree which should give the medical and the legal standing of the other medical specialists—the ophthalmologist, the otologist, the rhinologist, the stomatologist, all standing on a professional, scientific and legal plane of equality.

In the discussion of the subject DR. S. W. FOSTER agreed with the essayist that dentists have need of a broader medical education, especially on the line of diagnosis. He considered the suggested new degree a step in the upbuilding of the profession on a line hitherto unsuggested.

DR. W. W. WESTMORELAND and DR. T. M. ALLEN believe that the curriculum of the dental college of to-day provides all that is needed by the dentist. If the student is capable of passing the State Examining Boards he is prepared for anything he

may encounter in his practice. DR. ALLEN thinks the effort to acquire both the M.D. and the D.D.S. would result in a mere smattering of medicine and dentistry with no efficiency in either.

DR. B. HOLLY SMITH said that the medical colleges are admitting more and more generally the importance of a knowledge of the principles of dentistry to the general physician, and are making every effort to have medical students taught something of dental science. He considers the degree D.D.S. conferred after a course in the dental college of to-day, evidence of ample training in medical science to satisfy the most exacting demands. Lecturers in the dental colleges have to keep up with the trend of advanced thought, working constantly for higher attainments.

DR. B. H. SMITH thinks that a man with a thorough dental education would make a better physician than the most thorough medical education could make of him a dentist.

DR. S. W. FOSTER spoke of a too common difference existing between medical and dental therapeutics—the latter being largely empirical, based on statements read in journals and heard in discussion. Under certain conditions some one claims to have obtained good results from the use of a certain drug. Straightway when we encounter apparently the same conditions, we apply the same treatment—not based upon a knowledge of rational therapeutics, or a knowledge of cause and effect, but on the say-so of some one else. As dentists we should know more of medicine.

DR. H. E. BEACH protested against the oft-repeated statement that medicine is a science. There is but one science and that is mathematics. When medicine can say with mathematical precision that a certain line of treatment will have a certain result, then it will be scientific. If medicine were truly a science every physician in the world would prescribe the same treatment under the same conditions, always with the same results. Medicine as practiced to-day is and must be largely empirical.

DR. HURING thinks the paper read should inaugurate a dental revolution because of its far-reaching conclusions. The words dental education are misapplied. Dental education does not include all that the student should know before he is fit to

come up for matriculation before a Peabody or a Crawford—a poor ignorant boy who has just left the plow-handles, is not ready to begin his dental education—he requires a preliminary education. There are too many dental colleges; too great a demand for students, not for the good they can be trained to do their fellow-men, but for the money they bring in. If every student were compelled to prove his fitness for matriculation, and only those really ready for a college course admitted, the degree of D.D.S. would be a prize worth striving for—an honor to its possessor. Under the present system every student expects his diploma, and there is no reason why he should not expect it.

DR. T. C. WEST, Natchez, Miss., read a paper on “Dental Education.”

His paper was a plea for preliminary education as a prerequisite for matriculation in the dental college—a strong and broad foundation on which to erect the edifice of learning. The first year in the dental college is often spent in the vain endeavor to grasp the situation—in learning how to learn. His mental faculties have not been developed and trained—not before the second year is he able to digest the mental pabulum offered by the college lecturers. At the end of the third course he may have struggled through and received his diploma, but when he goes before his State Board he fails to come up to the required standard. We say to the college: “Raise your standard to meet the requirements of the law,” but the college should say: “Raise your boys to the proper standard before sending them to us.”

In the discussion of this paper DR. B. HOLLY SMITH spoke of the value of manual training, and especially of the cultivation of the left hand as being of very great advantage to the dentist. There would be a much more general use of the left hand but for a mistaken prejudice in the training of children.

DR. V. E. TURNER spoke of the lack of thoroughness in the mental training and discipline of the present system of education. A man devotes himself to what he understands the most readily and with the least study or effort, and keeps to that without being well grounded in the text-books. The college affords every

opportunity, but they do not enforce the full use of the opportunities offered.

DR. M. C. MARSHALL, St. Louis, read a paper entitled "Broader Education."

He said that though the standard of dental education has been constantly elevated, yet the American idea of "get there" rushes many young men into practice long before they are qualified to enter upon the duties of a scientific vocation. He referred to the discussion in the American Dental Association on the increasing number of dental colleges and the number of dental graduates, the supply threatening to exceed the demand, and the best methods of arresting this influx into already too plethoric ranks.

DR. MARSHALL suggested that dental education be made broader and the field of operations enlarged. Especially is the care of children in the various disturbances arising from pathological dentition properly belong to the dentist. To this end the dentist should be taught more medicine. He should also be better prepared to administer anesthetics—the treatment of facial neuralgia—inflammatory conditions of the oral mucous membranes, pathological conditions of the glands, tumors of whatever character, in fact, all conditions of the mouth requiring medical, surgical or mechanical interference. This is the domain of the dentist, and not until we are prepared to enter upon it and scientifically discharge the duties requisite thereto will we be dentists in the full acceptance of the name. It is true that there are already a few practicing along these lines. These are the pioneers preparing the way for our legitimate occupancy.

The subject of Dental Education was further discussed by Drs. J. Y. Crawford, Fr. Peabody and Arrington, Drs. Walker, West and Marshall closing the discussion of their respective papers. Subject passed.

DENTAL HYGEINE.

DR. R. G. YOUNG, Anniston, Ala., read a paper entitled: "Can the Dentine be Reached Through Systemic Treatment?"

Accepting as a fact that the teeth do undergo structural changes, teeth that at one time are so dense as almost to defy the

keenest temper of an instrument, at a later period appearing soft and chalky, and this without any apparent derangement of the general system, though often associated with close mental application or with undue yielding to the demands of fashionable society, he concludes that the changed character of the tooth structure is due to abnormal elimination of lime salts, as proved by urine analysis. The teeth (and probably the bones, also, though these are not so open to examination), being thus deprived of their normal supply of nourishment, the effect is seen in the changed character of the dentine. A return to hygienic methods of life is not sufficient, as under the conditions named the appetite is too poor to relish the diet which offers the necessary elements of tooth structure--brown bread, the cereals, etc. It is like offering a pint of some decoction or infusion when a grain of the alcoholoid of the same principle would give better results. Diet must be supplemented by the direct administration of the lime salts, especially the syrup of the hypophosphites, from which he is convinced great benefits may be derived.

Discussion of the subject was postponed to Thursday night, Thursday morning having been set apart for clinics, and Thursday afternoon to an old-fashioned Georgia barbecue, tendered to the Association by the 'Cue Club of Atlanta.

The Association was called to order again at 7:30 P.M. Thursday.

In the discussion of Dental Hygiene, DR. J. Y. CRAWFORD emphasized the importance of cleanliness of the mouth and teeth, and said that the first operation for every patient should be a thorough cleaning.

Proper information given on this point has great moral force and far-reaching in its results. He dwelt particularly upon the importance of cleanliness of the mouth, and the eradication of all disease previous to the eruption of the permanent teeth. The baby teeth should not be allowed to afford lodgment to septic matter to produce decay of the permanent teeth.

DR. T. C. WEST considers that the greatest difficulty encountered is in getting hold of the children early enough. Parents will not bring them until they are actually suffering from toothache.

He thinks the care of the teeth should be made one of the subjects of school instruction, beginning in the kindergarten.

Clean teeth should be made a matter of even more importance than clean faces and hands and finger-nails. If inspection and catechism along this line was begun in the kindergarten, immense good would result.

DR. R. C. YOUNG spoke of the good effect produced upon patients by habitually making a litmus paper test of the secretions, putting them upon a regime of Phillip's Milk of Magnesia for a few weeks and showing them the results. Such little things cause them to appreciate more fully the value of dentistry.

DR. COWARDIN, while admitting that there may be a hardening through the deposition of calcic salts, does not believe there can be any retrograde metamorphosis as there is no circulation through the dentine structure. He agrees with Dr. West that we cannot get hold of the children early enough. Departure from normal diet begins very early and we cannot expect normal tissues with abnormal and unhygienic habits of life, often, almost, from birth.

HISTOLOGY AND MICROSCOPY.

DR. J. H. BOOZER, Atlanta, Ga., read a paper on "The Contents of the Dentinal Tubuli, the Action of Medicaments, the Preservation of the Teeth by Fillings, the Phenomena of Pain."

He said that while not a microscopist himself, he had studied closely the works of authorities along the lines named, and was forced to believe that the microscope was chiefly valuable in proving conclusions already reached through microscopic study. Different men see very different things *and illustrate them*, and draw very different conclusions from the same microscopic slides. The arguments of each appear unanswerable when studied separately, but taken together they make a sorely-trying muddle, producing confusion and discouragement.

The paper showed study of the writings of Tomes, Black, Sudduth, Boedecker, Trueman, Harlan, Miller, and other eminent authorities, from all of which the author deduced theories of his own as to the contents of the tubuli, the growth and nourish-

ment of the teeth, calcification and decalcification, the action of medicines, the preservation or loss of teeth under different fillings, etc.

The paper was briefly discussed by Drs. Young, Wright, and Crawford and the subject passed.

On recommendation of the Executive Committee, Dr. Southall Dixon, Bolivar, Tenn., and Dr. S. C. G. Watkins, Mont Clair, N. J., were elected to active membership.

No report being offered by the Committee on Chemistry, the subject was opened for discussion.

DR. W. E. WALKER said that as no place was offered on the program for Incidents of Office Practice, he would cite a case on which he would like to have an expression of opinion, and which might come under the head of Chemistry, caries being to a certain extent a chemical process.

The case was that of a young lady, quite young, whose teeth had been under his care for a number of years and which were of excellent quality and kept in perfect condition until the present season, when, on her return home from school in a large city, after an absence of only a few months, he found thirty-nine cavities of decay, the teeth literally melting away. He had made diligent inquiry but could not learn that there had been any serious errors in diet, no "midnight suppers"—that bane of the girl's boarding-school. He could see no cause for the very radical change in the character of the tooth structure unless, perhaps, the unusual confinement and perhaps some mental strain.

DR. S. C. G. WATKINS thought that nervous strain and other remote causes should be taken into consideration in such cases.

DR. GEO. H. WINKLER has recently published a paper giving the remarkable results following the administration of *creosotum*, the homeopathic preparation, in just such cases. In one case where thirty or forty cavities of decay had been developed in a short time; after the administration of this remedy, in the same length of time and under the same circumstances, only two or three new cavities had developed. When the gums are hypersensitive, the saliva ropy, etc., *creosotum* will have the happi-

est effects, the mouth becoming as sweet and clean as that of a new-born babe.

DR. B. H. SMITH mentioned the fact that individuals coming to Florida from California, Maine, and other remote points, said that their teeth decay very rapidly. He has been unable to ascertain the cause of this, which, however, is a fact that cannot be disputed.

DR. C. L. BOYD had seen similar cases though not so extreme. There must be some local cause other than change of locality or diet. Subject passed.

The committee on Voluntary Essays offered a paper from DR. W. H. H. THACKSTON—a report upon the professional literature of the past year—"the crop and vintage of 1894-5." He spoke of the superabundant supply of monthly and quarterly publications as being a tax upon the time, patience and pocket, many of them being largely filled with "thrashed-over straw," but in nearly all may be found some practical hint, some invention or discovery, or some original application of the laws and principles that underlie dental science. Among the annual publications he spoke of Catching's Compendium as being of the highest value for ready reference to all that is new or needful. He commends the annual reports of the different dental associations to all who desire to keep abreast with the progress of dental science, the most important contribution to our literature being the Transactions of the World's Columbian Dental Congress, as marking an epoch in our history. The paper embraced a brief review of the most noted volumes of the year, and concluded with a sketch of the noted progress and advancement made in the character of our literature and of our professional attainments.

DR. FRANCIS PEABODY read a brief paper describing two cases in orthodontia of which casts were presented for examination.

DR. A. M. SCOTT, of New York, read a voluntary essay on the "Treatment of Oral Acidity; Local and Systemic." The conditions existing when the reaction of the oral fluids are abnormally acid, as from nutritional disturbances, abnormal systemic conditions, functional perversion, threatens the integrity of

tooth structure and associate parts—erosion, hyperæsthenia of tooth structure, chronic inflammation of the gingival margins of the gums, recession of the gums, etc. In all of these cases a non-corrosive alkali is naturally suggested, chalk, calcined magnesia, bicarbonate of soda, lime-water, etc., have all been used with more or less indifferent results. Their action is only transient; they are gritty and insoluble; they are anything but pleasant to the taste.

To meet both these conditions and overcome the objections to the agents named, magnesium hydrate offers all the advantages possible. And there is but one form suitable to the purpose and that is Phillip's Milk of Magnesia, a powerful antacid, chemically pure, odorless, tasteless, free from grit, not subject to precipitation and containing neither gum, starch nor glycerine—simply water and magnesia.

The association adjourned after the reading of these voluntary essays which were accepted and passed without discussion.

Called to order at 9:15 Friday morning.

THE CHAIR: The Committee on Appliances and Inventions not having prepared any report, any one having anything new which has not been presented to the association, has the privilege of the floor.

DR. C. D. CARPENTER described and exhibited the appliances used in the correction of irregularities in several cases, of which the models were passed around. He also passed around for examination a tooth containing a large amalgam filling which had done service in the mouth for fifty-three years.

DR. W. E. WALKER exhibited and explained his Physiological Articulator, an articulator in which the part representing the condyle is placed at an adjustable angle with the plane of articulation, a new feature in a dental articulator, and one found to be necessary in reproducing the articulation of models of the natural teeth, the average angle having been found to be about 35° , but ranging from $22\frac{1}{2}^{\circ}$ to 45° , in models taken from a large number of patients; the former being a case of extreme irregularity, the latter one of abnormal bicuspid cusps. The articulator is provided with a degree gauge for registering the angle in

each case, and a millimeter gauge for registering the correction of a wrong bite. These figures being recorded upon the plaster models of any given case, they can be laid aside for future use, and the articulator used for different cases.

The Publication Committee reported a proposition from the S. S. White Manfg. Co. for the publication of the proceedings of the present meeting in the *Cosmos*, and in book form, free of expense to the association. The proposition was accepted.

DR. B. H. CATCHING read the report of the Committee on Revision of the Constitution and By-Laws. The proposed amendments were read by sections and discussed. The final revision was adopted, as a whole, and on motion of Dr. Crawford, ordered printed with the proceedings of the present meeting.

The Committee on Clinics presented a report embracing a clinic by Dr. W. H. Richards, Knoxville, Tenn., demonstrating his method of loading lower rubber plates with low fusible metal either for the purpose of making a new plate for a much absorbed gum stable by additional weight, or by restoring an old plate to comfortable service cheaply, or for prolonging the use of a temporary plate under which absorption has gone on rapidly, but not sufficiently for a permanent plate.

DR. W. T. ARRINGTON, Memphis, Tenn., made a clinic on molar proximal and crown compound cavity, using Abbey's No. 5 soft gold with No. 4 tin foil, the foils being folded in a ribbon with alternate layers of tin and gold.

DR. L. E. CUSTER, Dayton, Ohio, fused porcelain in his electric oven, which does away with all odor, noise, gas and heat in the room.

DR. L. G. NOEL had a series of clinics with children treating almost every variety of disease incident to childhood.

DR. W. B. FINNEY demonstrated a double contour of the central incisor extending across the cutting edge, the contour built down to natural shape of the tooth, and done with instruments of his own design.

DR. C. L. ALEXANDER, Charlotte, N. C., demonstrated his suspension denture, and exhibited a disk mandrill of his own invention.

DR. W. E. WALKER, Pass Christian, Miss., exhibited three forms of his new Physiological Articulator and the well-known Bonwill Anatomical Articulator demonstrating with casts of the natural teeth that in Bonwill's Anatomical Articulator, while they will *occlude*, they will not *articulate* so as to permit the functional movements of "grinding" and "biting." In the position for "biting" the molars come in contact before the morsal surfaces of the incisors can engage. In the position for "grinding" the long superior lingual cusps touch the long inferior buccal cusps on the side from which the jaw is receding, preventing contact on the opposite side. The models of natural teeth on the same "loops" taken out of Bonwill's Articulator after the above demonstration, and placed in Walker's Physiological Articulator, both *occlude* and *articulate* perfectly in any position in which the lower jaw may be placed, that can be taken by the natural jaw, the "biting" and "grinding" articulation being reproduced as in the mouth from which the casts were taken.

In the Bonwill Articulator the part representing the glenoid fossa is placed at right angles to the part representing the ramus, thus forcing the part representing the condyle to move horizontally forward with no accommodation for the long upper lingual and the long lower buccal cusps in the "grinding" and "biting" positions.

In the Walker Physiological Articulator the part representing the glenoid fossa is placed on an incline at a variable angle corresponding to the variations found in the roof of the glenoid fossa in different individuals, thus reproducing the movement of the mandible and the articulation of the teeth in the different positions which it takes in the subject.

DR. M. G. MARSHALL, St. Louis, Mo., presented a new feature in bridge-work—a gold box frame having cavities into which the porcelain teeth are fitted and so grasped by the gold that they cannot be pressed out—they are further retained by means of oxyphosphate of zinc or melted sulphur. In case of fracture a tooth can be replaced without removing the bridge, and no gold-grinding surface is necessary.

DR. P. W. ONDERDONK, New York, demonstrated the attachment of a Logan crown by means of a gutta-percha washer, the roof end being smeared with a varnish composed of resin and chloroform.

DR. E. P. BEADLES, Danville, Va., made a combination filling with cohesive and non-cohesive gold, using hand pressure entirely, cavity shaped without retaining points. He maintains a perfectly erect position in all his operations and never has a backache.

The report of the chairman of the Committee on Operative Dentistry and a paper from Dr. D. L. Boozer, Columbia, S. C., entitled, "Public Opinion vs. Dentistry," received too late for reading, were ordered included in the Transactions.

DR. J. Y. CRAWFORD read a series of communications from the Nashville Chamber of Commerce, the Mayor, the City Council, the Board of Public Works and the officials of the Tennessee Centennial tending a most cordial invitation to hold the annual meeting of 1896 in Nashville during the Centennial Celebration.

Nashville was accordingly selected as the next place of meeting, and the association adjourned till November, 1896.

Materia Medica and Therapeutics.

BY J. S. CASSIDY, M.D., D.D.S., COVINGTON, KY.

Abstract of paper read at American Dental Association, August, 1895.

One of the queer things appearing with the demand for iodoform substitutes is that they must all be more or less rich in iodine. Aristol, for instance, is thymol iodid, iodoform being menthenyl iodid. It does not follow, however, that these must give up their iodine in order to be therapeutically active. Indeed, comparatively few chemical compounds are dependent on decomposition for their medicinal activity, among such being the peroxides of hydrogen and of sodium, the hypochlorites, etc.

The disinfectants, as a rule, either give to or take from the infectious matter their individual equivalent radicals, negative or positive, as the case may be. Antiseptics, on the contrary, do not, as a class, lose their chemical identity by contact with organized material; of such are iodoform, common salt, carbolic acid, etc. They act as antiseptics in their capacity of compounds, as is easily proved by sufficient experiments, notwithstanding some authorities claim that iodoform, at least, is effective only by setting its iodine free.

Many of the most dangerously active bodies in their influence on animal life retain their compound nature when in action, of which prussic acid and arsenious oxide will serve as examples. We need, therefore, not necessarily pay attention to the relative proportion of any element in a compound so far as the medicinal effects are concerned, unless the mode of action of the compound involved is by co-incident decomposition in the presence of organized structure, and of such iodoform and its congeners are not good examples.

One of the newest drugs belonging to this category is called di-iodoform. When presented in powder to freshly-cut or abraided surfaces, or in chloroform solution into root-canals, it fulfills the duties of a very good antiseptic, and when either in crystal or powder it is inserted into root-canals and fused by a hot broach. It resolves, on cooling, into an insoluble, black, concreted mass of permanent character. * *

Electrozone has proven to be an acceptable, inexpensive and effective germicide and disinfectant. * * The 25 percent dilution of electrozone does good service as an injection into the antrum immediately after the withdrawal of pus. I think it is preferable for this purpose to peroxide of hydrogen, inasmuch as it is not accompanied by a too rapid evolution of gas and consequent pressure in the cavity.

Many experiments made during the past year in the laboratory and on the living subject as well, with aqueous solutions of the gas formaldehyd, have convinced the writer that as an embalmer of pulp debris, it is superior to all other agents thus far employed exclusively for such purposes. The aldehyd condenses

into paraldehyd in the meshes of the devitalized tissue, and at the same time absorbs the organic laden moisture present, changing the debris into a hard, coherent, non-infectious residue.

In closing this report I wish to thus publicly thank Dr. Harlan for having called our attention to the virtues of trichloracetic acid. When properly diluted and applied to the inflamed parts, including and surrounding the peridental membrane, due to whatever cause, its magical influence, owing to its solvent, caustic, stimulant and astringent action combined, in lessening, if not curing the disease, is so evident, that a specific position has been justly awarded it by those who have given it a fair and impartial trial.

SELECTIONS.

Surgery without Pain.

The meeting of the Philadelphia County Medical Society was rendered particularly interesting on account of the presentation of a paper by Dr. T. Pervin on the new method of abolishing the pain of surgical operations without the necessity of employing ether or chloroform. This is the system suggested and practiced by the well-known German surgeon, Schleich, who, by its use, has been able to perform practically all of the minor and many of the major operations of surgery without the slightest pain to the patient and without depriving him, in any other way, of his consciousness.

By the method of Schleich there are prepared three solutions of common salt, in which are dissolved different quantities of muriate of cocaine and morphia. The part to be operated upon is thoroughly cleansed with an antiseptic solution and the surface brought to a low temperature by a spray of chloride of ethyl. Into this area of the skin, which, by the action of the spray, has been deprived of all sensation, the salt solution containing the cocaine and morphia is injected by means of a special hypodermic syringe, numerous punctures being made in all directions. This renders the deeper structures insensible to the surgeon's knife,

and for a period of from twenty minutes to half an hour the patient is not conscious, so far as actual pain is concerned, of extensive cutting and sewing.

The new method differs in an important degree from the ordinary employment of hypodermic injections of cocaine. The strength of the drug which has been used in the past is about one part in each twenty-five parts of the solution, while in the Schleich method there is often employed a strength of only one in ten thousand. In the former, however, only a few drops of the solution are employed, while in the latter, the tissues surrounding the part to be operated upon are thoroughly infiltrated with the solution. With the small quantity of the cocaine employed by Dr. Schleich it is apparent that something more than cocaine is responsible for the local anæsthesia so perfectly obtained. In the opinion of Drs. Keen, Ashhurst and Morton, who discussed the merits of the new system, the infiltration of the tissues with the solution and the distension nerves were responsible, in a large measure, for the absence of pain when the incision by the knife is made.

To indicate the manner of employing the method of Schleich, and to show the entire absence of pain, one of the surgeons had the solution inserted beneath the skin of the arm and an incision an inch long made and sewed up before the society.

In the discussion it was generally conceded, both from the results achieved by the German surgeon and the experiments made in a number of cases in this city, that a decided advance has been made in the field of anæsthetics, and that for a large number of operations the infiltration method would entirely supersede the general anæsthesia by ether and chloroform.—*Philadelphia Record*.

The Use and Abuse of the Brain.

In the course of an address on this subject, Dr. William A. Hammond recently said: "Anxiety causes more brain disorders than any other agency I know of unless it be love. Many jokes are made about the grey matter of the brain, but I will say, right here, that I have a great respect for the grey matter

of the brain. There is no higher organism than that. It is the grandest organ in man, and were I ever to worship anything, it would be a portion of the grey matter of the brain. It is well for us to know that the emotions cause more unhappiness and crime than any other function of the brain. Human beings are governed by their emotions, and it is well that they should be, though it is the emotions that wear away the brain, and not honest, intellectual work. Very few people suffer from intellectual work, and if my memory serves me I do not recollect ever having a mathematician for a patient. It is not intellectual work that causes nervous dyspepsia, but the emotions, such as anxiety, fear, sorrow and love. I consider that eight hours are sufficient for a man to use his brain, because if he exceeds that time he becomes nervous and fretful, and an exhaustive brain is an irritable brain. You may not feel the evil effects of the stress of brain work at the time, but you will sooner or later, when it is too late. The men that work at night with their brains are the ones that expose themselves to danger and death, which will surely come unless the great strain on the mind is lightened."

Separation of Teeth.

Rubber for separating the teeth is little used on account of its great activity and of its disposition to work its way toward the neck of the tooth, thereby pressing on the gum and causing considerable pain. Yet rubber is made in special forms and used for this purpose still. This style of rubber often gets quite stiff, hard and rotten, making it, when wanted, unfit for use. Rubber-dam is always at hand, is always fresh and always ready for use. If a piece of this be *twisted in a roll between the thumb and fingers* it can be made in any size necessary for the case in hand, and being thus made cylindrical, is in the best form for application. Three, four, five or a dozen turns can be made of a small discarded piece of an inch square to place between the teeth to effect their separation.—*British Journal of Dental Science.*

Liquid Air.

Professor Dewar has exhibited at the Royal Institution the working of a new apparatus for the production of liquid air with a degree of ease not hitherto attainable. Around a cylindrical vacuum-jacketed vessel Professor Dewar closely coils a metallic tube. This is inserted into a second vacuum-jacketed vessel, the result being that the metal tube is protected from external heat by a vacuum both inside and outside the coil. The inner end of the tube has a pinhole orifice which acts as a stopcock, and the outer end is connected to a bottle of condensed air at a pressure of, say 200 atmospheres. On opening the stopcock of the air reservoir, the condensed air passing through the coil to the bottom of the outer vacuum vessel is enormously cooled by expansion on passing the pinhole. It has no mode of escape, save by forcing its way upwards between the metallic coil and the glass walls which surround it outside and in. By its passage the coil is powerfully cooled and the condensed air passing through it reaches the nozzle at a lower temperature than before. After this process has been carried on for a few minutes liquid air makes its appearance at the nozzle and collects at the outer vacuum vessel, where, in a few minutes more, quantities of seventy or eighty c c, can be obtained with ease. The process is facilitated by cooling the condensed air on its way to the coil, as by passing the tube through solid carbonic acid.

With this refinement, liquid air appears in three or four minutes and collects with great rapidity. The new apparatus does not appreciably reduce the heavy expense incident to experiments at low temperatures.—*British Journal of Dental Science.*

Heredity.

An interesting lecture on "heredity" was delivered the other day in Madras by Surgeon Major J. Smith. He defined "heredity" as a law amongst animals and plants which ensures that the young ones shall possess the peculiar qualities and properties

of their parents. Heredity in the living world is what gravitation is in the non-living—the great steadier of things. It is the hand-maid of natural selection; and while natural selection affords an opportunity for the development of qualities that best fit living creatures for their environment, heredity ensures that these qualities shall be duly transmitted from parents to offspring. The lecturer regretted the general neglect of the law of heredity in the improvement of the European races, and concluded by giving his idea that the people of every nation should be classified carefully in regard to their fitness for marriage and to the particular ties into which the individuals should enter. This classification, the lecturer observed, should begin at an age below that at which choices usually are made, and approvingly spoke of the customs of Sparta of old in this matter.—*Indian Lancet*.

New Method of Administering Chloroform.

Preferring, in general, chloroform to ether M. Rosenberg (*Berlin klin Woch.*, No. 10, 1895), finds that the accidents due to chloroform are to be attributed to the manner of administering and not to the drug itself. As every one knows, the danger of chloroform anæsthetic is the arrest of the heart, or of the respiration. Both, he contends, are brought about reflexly by the irritating action of the chloroform upon the terminations of trigemini distributed to the mucous membrane of the nose. The same reflex can be produced by any other anæsthetic taken through the nose. To obviate this he first renders the mucous membrane of the nose anæsthetic by the use of cocaine, which in itself is an antidote to chloroform. As a result of his experience of this method in fifty cases he concludes as follows:

1. The commencement of anæsthesia is less disagreeable for the patient, who never makes defensive movements.
2. The excitement stage is often wanting, and is always slight except in the case of alcoholics.
3. During anæsthesia it is very rarely the patient vomits, and if vomiting does occur there is little retching.

4. Upon awakening, the patient experiences no disagreeable sensation, and is not haunted by the smell of chloroform or ether.

The following is his routine practice: A few minutes before the general anæsthesia the patient is directed to blow the nose strongly so as to clear the mucous membrane of mucus, and leaning forward or sitting (never lying down), is directed to snuff in each nostril a centigramme of powder consisting of some inert substance and 10 percent of cocaine hydrochlorate. This is repeated in about three minutes, and general anæsthesia is commenced. If the operation be prolonged the insufflation is repeated at intervals of half an hour. It is also repeated when the operation is over, as it causes the patient to waken up more rapidly. As to the mode of administering the chloroform itself, the author is strongly in favor of the continuous administration, drop by drop.—*Canadian Practitioner*.

Manners of Doctors.

A very gratifying tendency has marked the development of the medical profession in the last generation. The slough of mannerisms, the formal dress, the owl-like solemnity, have been thrown off, and the physician, by his own choice, is being judged more by his actual attainments than by external appearances. Thirty years ago a bald head, a white beard and a long frock-coat were as much a part of a physician's equipment as his diploma. Now, on the other hand, it is no infrequent occurrence for an elderly man of real ability, and modern in his methods of practice, to lose a patient through the fear that he may not be fully abreast of the times. What can be further from the old traditions than a leading surgeon lounging about in an outing shirt and blue belt, or a distinguished physician playing polo? Yet these amusements are simply a relaxation from the tension of professional study. One of the best indications that people are learning to judge their medical advisers by their merits is the fact that the advertising physicians are being driven to the wall, despite the most specious extrinsic evidence of success that the shrewdest business methods can produce.—*Lippincot's Magazine*.

Guaiacol as a Local Anæsthetic.

M. Championniere reports (*Gazette des Hopitaux*) a series of experiments lately made by M. Andre, a Paris physician, on the use of guaiacol as a local anæsthetic. M. Andre, as the result of an accident, received a very painful scald. It occurred to him that guaiacol, like other members of the phenol group, possessed anæsthetic properties, and he accordingly made an ointment containing it for the purpose of applying it to the burn. He was astonished at the relief of pain produced, and determined to try the effect of it subcutaneously. As a result of his experiments he affirms that it will produce effects absolutely identical with those obtained from the use of cocaine.—*Canadian Practitioner*.

The House We Live in.

This is the advice of the late lamented Prof. J. M. Coates: "Think deliberately of the house you live in, your body; make up your mind firmly not to abuse it; eat nothing that will hurt it; wear nothing that distorts or pains it; do not overload it with victuals or drink or work; give yourself regular and abundant sleep; keep your body warmly clad. At the first signal of danger from the thousand enemies that surround you, defend yourself. Do not take cold; guard yourself against it; if you feel the first symptoms, give yourself heroic treatment; get into a fine glow of heat by exercise; take a vigorous walk or run, then guard against a sudden attack of perspiration. This is the only body you will ever have in this world. A large share of the pleasure and pain of life will come through the use you make of it. Study deeply and dilligently the structure of it, the laws that should govern it, and the pains and penalties that will surely follow a violation of every law of life or health."—*Indiana Medical Record*.

DON'T use soap and water on the body just preceding the application of cocaine; the alkali destroys the anæsthetic action.

Overdone Sterilization.

There is a golden meaning in all things, and even the most salutary and sanitary practices can be carried to excess, says the *Journal of the American Medical Association* of December 14th. In what may be termed microbophobia, the extremes of caution as to the exposure to pathologic germs, there may be a danger on the other side. One may, in avoiding the Scylla of organic infection fall into the Charybdis of chemical poisoning, or starvation. These thoughts are suggested by a paper by Dr. Louis Starr in the December number of the *American Journal of the Medical Sciences*, in which he gives details of three cases of infantile scurvy due to the exclusive use of sterilized milk; and he further states that he has seen five other cases in consultation within eighteen months. He attributes the disease to the alterations that occur in the milk during the process of sterilization, especially in the lactalbumin which has its solubility diminished, and in the fat globules which coalesce with each other, and with some of the insoluble albuminous matters. All the cases recovered promptly on a diet of unsterilized milk, together with raw beef juice and orange juice and tonics.

Over-Supply and Diminished Demand.

A double suicide which, says the *New York World*, shocked Paris the other day, brought to the attention of the public the financial straits in which, it is said, the majority of the physicians of that city live. Dr. Arnaud de Langlard, an old physician who had been decorated by the Government for brave conduct during the cholera epidemic many years ago, committed suicide with his wife because his practice had dwindled to the vanishing point, and starvation was staring them in the face. In commenting upon the tragedy, several newspapers asserted that in Paris not more than one doctor out of five is able to make more than the barest living. Among the causes of this poverty among physicians is the destitution of most of their patients.

Medical science has made such great strides, too, that maladies of all sorts are more quickly cured, and such precautions are taken to prevent the spread of contagious diseases that epidemics are becoming practically unknown. The number of doctors, on the other hand, has rapidly increased. Another reason why there is not practice enough to go around is that in many of the hospitals people can be treated for nothing or at a very nominal figure. Many of these hospitals have training schools which are free, in which are taught the rudiments of medicine and surgery. These schools are largely attended, and many sick people are taken in hand at their own homes by some member of the family who has profited by this instruction.—*British Medical Journal*.

How to Avoid Colds.

There is one simple way of avoiding colds—keep your mouth shut while out of doors. The man or woman who comes out of an overheated room, especially late at night, and breathes through the mouth, will either catch a bad cold or irritate the lungs sufficiently to cause annoyance and unpleasantness. If people would just keep their mouths shut and breathe through their noses, this difficulty and danger would be avoided. Chills are often the result of people talking freely while out of doors just after leaving a room full of hot air, and theater-goers who discuss and laugh over the play on their way home are inviting illness. It is, in fact, during youth that the greater number of mankind contract habits or inflammation which make their whole life a tissue of disorders.—*Family Doctor*.

MINISTER—And so you think you are to be a minister when you grow up, my little man?

LITTLE MAN—Yessir. Mother says I'm just cut out for a minister.

MINISTER—Because you do so love to be good?

LITTLE MAN—No; because I'm always gettin' sore throat, and bein' ordered away for my health.—*Ex*.

Poisonous Action of the Aqueous Vapor of Expired Air.

Dr. Livierato (*Arch. Ital. di Biol.*, 1895, p. 279) condensed the aqueous vapor of the breath of persons afflicted with disease of the respiratory tract accompanied by fever, of the same without fever, of persons with fever but with no respiratory disease, and of persons in health, and injected the liquids obtained into rabbits. That from the first mentioned caused a fever lasting from three to six days, dullness, and diminished reflexes; that from the patients with no fever gave the same results, but less marked; that from persons with fever but no respiratory disease produced little or no effect, and that from persons in health none whatever.—*American Journal Med. Sciences.*

Municipal Housekeeping in Paris.

Paris has spent an immense sum in admirable public markets, but she now receives as rental from them annual income of more than 8,000,000 francs. The huge La Villette abattoir has not only been advantageous from a sanitary point of view, but it yields the city an income of about 3,000,000 francs a year. Facts like these show that Paris knows how to make her municipal housekeeping pay as well as yield large and splendid public results.—*British Medical Journal.*

CHILDREN'S FOOD.—Dr. Allen does not approve of giving little children coarse, hard food to masticate. The temporary teeth are not suited to that purpose from their brief duration, during the early part of which the roots are undeveloped, and the teeth not firmly fixed in the alveolus, while during the latter portion of their retention the roots are being absorbed, the edges having sharp, jagged points not fitted to bear the pressure of excessive mastication. The effort being painful, the child swallows its food as best it can, and the foundation for dyspepsia is early laid.

To Open the Eustachian Tube.

Recognizing the danger of allowing the uninitiated to use the Politzer air bag for this purpose, Dr. N. R. Gordon, of Springfield, Ill., thus describes (*Medical Brief*), a method original with him :

“ Take into the mouth a full sup of water, grasp the nose tightly with the thumb and finger, try to blow air out through the nose and at the same time throw the head far back, so the water will run into the back part of the mouth and force upward the velum palati, then swallow the water and the air will gently open the eustachian tubes. This act can be repeated frequently without injury ; it is nature's own way, only in an exaggerated form, for opening the tubes.

A MIXTURE of chloroform (ten parts), ether (fifteen parts), and menthol (one part), used as a spray, is recommended as an excellent and prompt means for obtaining local anæsthesia, lasting for about five minutes.—*Boston Med. and Surg. Journal*.

EDITORIAL.

A correspondent presents the following :

“ DEAR SIR—I write to ask you a question. ‘ What is the best treatment for chemical abrasion of the upper incisors ? ’ The teeth are abraded badly—the two centrals and laterals, commencing a little below the margin of the gum and extend about half way down the front. The abrasion at the upper edge, which is a little below the gum, is very deep so as to make almost a square shoulder, but decreases in depth as it goes down. It looks as if a half-round file had been drawn across the front. The depression has a perfectly smooth and polished surface, even more so than the enamel itself. The cuspids also are affected, but not so much, and in the first bicuspid you can see a trace of it. I

know it has not been caused by any mechanical action. The party is about forty-five years old, has taken the best care of his teeth and this has appeared in the last two or three years. What can be done for it? Will you please give me what information you can? It would confer a great favor on me as well as on the patient."

In reply to the above request, we may say that the affection you describe is often found, and usually on teeth of the better varieties, and even the best teeth are sometimes affected in this way; the inferior kinds of teeth are rarely if ever abraded in this manner. In regard to its cause there has been a number of theories advanced, but none of them fully established; these theories we need not discuss or even mention here; you have a case and wish to know what to do with it. In the first place, note the conditions of the mouth, the gums, the mucous membrane, the secretions, the saliva and mucus. If any of these are abnormal, determine the condition as accurately as possible; if the tissues are affected, restore to health by the appropriate treatment; if the secretions are vitiated markedly abnormal, they should be restored to a normal state, this can only be done by systemic treatment, which ought to be hygienic rather than by medication; notwithstanding the latter will, in some cases, be required, and should be such as will act upon the secretory organs. In some cases changes may be brought about by simply hygienic means that will so change the condition of the mouth that the wasting of the teeth as above indicated will be retarded, in some cases altogether arrested. But so uncertain has all such treatment proved hitherto, that it cannot alone be relied upon generally for the arrest of the affection. Where grooves or pits of some considerable depth have been made, filling seem to be indispensable, and even where a large plain surface is wasting away by this process, putting on a covering of gold seems to be clearly indicated, as the most certain means of prompt arrest. We hope the time is near at hand when we will know more about this affection, and when we will be able to prevent its ravages by more certain means than we are now able to command.

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COMMUNICATIONS.

Chairman's Address.

BY M. H. FLETCHER, M.D., D.D.S., CINCINNATI, O.

Delivered in the Section on Dental and Oral Surgery, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

I acknowledge with pleasure the courtesy shown me, in again selecting me as presiding officer; though this Section is not large as a national body, the quality of its work is second to none, and its influences are unbounded. Its tendency is to elevate to a higher standard thereby advancing the science of the profession. In looking back over the past twelve months, these marks of progress are encouragingly conspicuous and, we believe, point to a steady and healthy growth. This is indicated by the increased number of practical scientific workers who are coming forward; by books of scientific value second to none in their line; by numbers of good papers and discussions on important topics, many of which have served largely to add to our fund of knowledge. Errors have been eliminated which is equally important with new discoveries. Superstition and guessing are giving place to accuracy and precision.

It is a fact that all the professions which have man himself for the subject, which aim to rectify his physical deficiencies, are to-day, and always have been, of the greatest interest; their scientific advancements in the past decade are more marked than in any previous one, but our *lack* of knowledge is still very great.

Through the kindness of nature in maintaining her laws, regardless of all theories or methods, our patients recover and are even grateful, believing the result to be in exact accord with the laws which we are supposed to understand; but though we may have been both honest and conscientious in our work, does this lessen our responsibility? In other words, should we not, and can we not, know better than we do? And do we take all means accessible to inform ourselves?

When we work or reason from wrong principles, nature keeps coming back at us with the same conditions, and by continuous knocking at our obtuseness, tries to show us the right way; and when at last we perceive and accept her teachings, we become, through our enlightenment, the true benefactors of mankind, and I take it that there is no nobler nor happier position in which man may find himself. Now, in order that we may attain this desirable position, our minds must be constantly on the alert, willing to correct errors, and sensitive to new truths, much as the photographer's plate is sensitive to light and shadow. This might seem a dry and monotonous pastime, but those who have tried it longest have gained the most pleasure from life, and have been of greatest usefulness. Lubbock says: "Those who have not tried for themselves, can hardly imagine how much science adds to the interest and variety of life." This kind of life and work gives us all the poetry we many desire with a limitless field for imagination; it gives us art, for nature is art; it gives us history, for facts about people and nations is history; it gives us science, for knowledge of the laws of the universe is science. Nor is this the limit, for after all our seeking there yet remain truths that are beyond the mind of man to conceive.

I am aware that when I touch upon the best methods of educating students for our profession, I run the risk of being prosy and tiresome; but the subject bears so directly on our standing in the future, that I presume upon your courtesy to the chair, and take advantage of my opportunity. Discussion of this point has not been confined to our specialty alone. Educators in almost every line have been much agitated over the same problem. I am persuaded from what I have read and observed on

this topic, that a good way to try to solve the question is through the study of mental philosophy, the laws of which within certain limits are as unchangeable as those pertaining to the physical man. Now if we take into consideration the fact that it is through sense-perception that we receive all our knowledge, would it not seem that the technique classes or laboratory methods would be the most natural channel through which to educate not only our students, but those in all branches of medicine? Recall for instance the delicate technique required of the successful surgeon, the oculist, the throat specialist or gynecologist; even the general practitioner needs a gentle and educated touch, and a most thoroughly-trained mind in reasoning from cause to effect, and effect to cause. Good and accurate results come only to him who has learned how to reason after this manner, first on the simplest matters in philosophy; then gradually going on, step by step, until he is able to handle in a practical way the more obtruse problems. This training begins in babyhood, from the time the infant first notices the candle-light, and by experiment learns that if he touches it, he suffers pain. Thus he accumulates one fact after another, until he finally reaches the last stages of mental development, that of judgment and ideation. In connection with this subject of mental ripening comes the question, which has been somewhat discussed, as to whether a student showing no adaptability in learning the branches he has chosen, should be allowed to continue at such work; or whether he should be shown his defects, and encouraged to try some branch of work for which he may have some capabilities. Pertinent to this point, there is in the February number of *The Educational Review*, an article on "The Education of the Nervous System," by Henry H. Donaldson, in which he says: "No amount of education will cause enlargement or organization where the rough materials, the cells, are wanting; and on the other hand where these materials are present, they will in some degree become evident, whether purposely educated or not;" he further says: "On neurologic grounds, therefore, nurture is to be considered of much less importance than nature, and in that sense the capacities that we most admire in persons worthy of remark are certainly born rather than made."

Again he says, in speaking of early mental ripening or precocity: "The same conditions which give the individual a generously-planned nervous system also favors its early development." In such precocious persons it tends to grow for a longer period than usual, a feature which is fully as important as the precocity itself. It is extremely interesting to see how, among a series of eminent men, excluding men of action, the determination of distinction follows the order in which the brain normally attains the high development necessary to command recognition in a particular profession. He gives the following table based on 287 cases analyzed by Prof. James Sully:

287 Cases analyzed by Prof. Sully.	Gave Promise Before 20 Years Old.	Produced Before 30 Years Old.	Attained Dis- tinction Before 40 Years Old.
Music'ans.	95 per cent.	100 per cent.	100 per cent.
Artists.	89 per cent.	98 per cent.	100 per cent.
Scholars.	83 per cent.	71 per cent.	90 per cent.
Poets.	75 per cent.	92 per cent.	92 per cent.
Scientists.	75 per cent.	80 per cent.	92 per cent.
Novelists.	75 per cent.	56 per cent.	80 per cent.
Philosophers.	67 per cent.	56 per cent.	60 per cent.

"Those professions demanding only small acquisition but a very perfect adjustment between one sense organ, and one set of muscles, as between the hand and the ear in the musician, and the eye and the hand in the artist, are precocious throughout, while the philosophers with their need for accumulated information and ripened judgment bring up the rear. Similar investigations on slightly different material yield accordant results."

The art of our profession would naturally compare with the artist in the table, for success in this department is dependent upon the training and skill of the eye and the hand; again, the science of the profession compares with the scientists in the table, who come much lower in the list, showing the necessity of more strength of mind, and a greater accumulation of facts. But to be simply an artisan and a scientist is not sufficient to enable one to reach the highest standard of usefulness as a practitioner of medicine or its specialties. In our own division one needs to be somewhat proficient in at least four callings, namely: As an artist, a scholar, a scientist and a philosopher. If one of

fair ability honestly endeavors to meet the demands of his profession in these four callings, all things desirable will be at his command.

It must be evident that it matters not whether a student be dull or precocious, the amount of his knowledge is proportional to his accumulation of facts and his ability to recall and utilize them. Different men have different abilities. Some persons do with great ease or almost intuitively those things that are only done with the greatest effort by others, if they succeed at all. This being the case, the standard of license to practice any department of medicine should be so guarded that no incompetent person could enter its ranks. As to the best methods of educating for this standard, the most natural, as before stated, is that method in which the senses convey knowledge by contact with the objects and phenomena in actual work, at first in its simplest form, then gradually leading step by step to perfection; by this method the mind is stored with facts and trained to reason, and use them to the end desired.

The "technic system" of teaching was very ably presented last May by Dr. Edward C. Kirk, before the Academy of Dental Science of Boston and well discussed by its members, and I wish to say that I heartily agree with the essayist. There is, however, one feature of education in both dental and medical colleges, which was only touched upon in the paper and mentioned by no one during its discussion, yet I consider it a question of the greatest importance. It is that of having suitably-trained instructors in our colleges. This I deem to be as great a defect as any at the present time in our system of teaching.

At the last meeting of the American Dental Association during the discussion of the report of the Committee on Dental Education, Dr. H. J. McKellops struck the keynote when he said: "Give me the man who can teach science." If a student is bright and apt in his college work he will make good progress under almost any circumstances, but if he makes good progress with poor instruction, how much better would he do under thoroughly-trained teachers. It has been my pleasure to be a student, under instruction, in some branch almost continuously

for the past eighteen years, and this feature of ability, or lack of it, to impart knowledge is a point that has impressed me very strongly with every change of subject and instructor. It is not every one that has knowledge who knows how to impart it intelligently, and the fewer number knows how to present a subject in a form most suited to the mental status of their hearers. If the capabilities of all students were equal, and their interest in progress were the same, the matter would not present so many difficulties to the instructor, but were these conditions possible, the same class would progress much more rapidly under one teacher than under another. An article in a recent magazine by a college student compares two professors in the following manner: "Though he thoroughly knows his subject, his instruction is about as clear as mud; with him everything is 'perfectly obvious,' but to us his attempts at exposition are positively confusing; he thinks only of his subject, never of his students; he is cold, unsympathetic, unapproachable. I want to know the nature of this requirement for to-morrow, but if I ask him he will either show impatience at my ignorance or temerity, or misconstrue the motive of my inquiry and stand upon his pedestal of superior knowledge. But with Professor X. we make headway; he seems anxious and able to make everything clear; he puts himself in his pupil's place; he is always willing to remain after the lecture to answer questions or discuss debatable points."

Charles C. Ramsay, in the January number of the *Educational Review*, speaks of this subject as follows: "True teaching, whether in school or college, is the process of causing another to know through self activity, and includes the mutual effort of two persons to the same end, the teacher and the learner. Until the two are at this common work the process of teaching has not been begun; until the learner has learned, the teacher has not taught." And let it be remembered that the proof of the teaching process always rests with the learner, not with the teacher, whether the scholars be young or old. "The teacher can prove that he tried to teach; the scholar alone can show that the teacher succeeded." "The measure of information," said Pestalozzi, "is not what the teacher can give, but what the pupil can receive."

These fundamental principles of all good teaching are as applicable to collegiate as to elementary and secondary instruction.

Now, if this be the case in literary institutions and universities, where the professors and teachers give their entire time to this work, and should know how to do it in the best possible manner, how much more is it true in dental and medical colleges, where the teaching is done by men whose time is almost wholly taken up by a busy practice; many of them are eminent and skilled in their professional duties, yet are quite marked for their lack of ability to teach; nevertheless, their students are expected to reach a high standard under their tutorage. Is it any wonder then that students pony, and resort to all kinds of methods for getting assistance at examinations, under such conditions?

The subject as to whether the lecture method or that of recitation is best has been pretty fully discussed amongst our educators, but whichever method is adopted it in no way makes a good or bad teacher. Now, if one needs so much training in order to properly fill a simple cavity or extract a tooth, a procedure which seems so simple to us, how much greater his obligation to be properly prepared before attempting to direct and instruct the intellect of others. The loss of teeth or a limb may be replaced by artificial substitutes, but the loss of time can never be replaced; and time to many students is as valuable as to the professor; probably not from an immediate financial standpoint, but the loss of time to an earnest, intelligent student at an age when he is studying a profession is not a trivial matter. You may say that many students, or even most of them, care but little for their time, or what they learn, so they are graduated and given a license to practice; granting this to be true, it is all the greater reflection upon their instructors, for if the work was made more interesting the number of attentive students would increase proportionally and develop into the kind of practitioner we delight to recognize; it is a known fact that it is not always the pupils who stand highest in a class that shows the best results in after life; the plodding, honest ones in almost every class many times outnumber the precocious ones; and under the guid-

ance of properly-trained and intelligent instructors, the number of honest plodders might be increased from the ranks of those who are apparently dull and careless, and the list of precocious might be enlarged from those who are brilliant and capable, but who fritter away their time in gaiety and foolishness. It is not an uncommon thing to find in a class students who outrank many of their professors in strength of intellect and natural ability; not only these, but all students have a right to demand that their instruction be presented to them in the best possible manner.

It is a perfectly easy matter to get professors for the asking, but trained instructors are rare; and even those who have the natural qualities to become good instructors are not numerous. No one doubts that we have professors in almost every college who are thoroughly capable, and who take time and pains to be what they should to the student, but, on the other hand, a greater number fall far short of this standard.

I believe a majority of students in all colleges are industrious and of good intent, and many of them are barely able, financially, to carry through a three or four years' course; such students, if denied the full measure of their capacities to receive, are defrauded of both money and time, the first of which never is, and the last never can be repaid. There are no normal schools, so far as I know, for the proper training of dental and medical teachers, and if there were, it does not seem practicable for many of our eminent practitioners, who are in other respects most suited for the position of instructors, to leave work and go to other localities for such training; but such a normal school, it seems to me, is demanded in some suitable form, and it would seem a most fitting topic for discussion and action by our national associations of faculties. The distance a missile flies and the velocity with which it goes is exactly proportional to the force which impels it. The analogy holds good in our colleges, for students of high grade can not be graduated unless the force can be found in their Alma Mater to produce the desired result; consequently, it would seem no more necessary, if as much, to lengthen the term at college, increase the curriculum, and raise the standard of entrance, than it is to increase the quality and ability of college instructors.

Physiological Antagonisms between Medicines and Diseases.

Read before the Isaac Knapp Dental Coterie of Ft. Wayne, Indiana.

To the Isaac Knapp Dental Coterie of Ft. Wayne, Indiana. The pleasure which I feel at this time originates from two sources—First, that dentistry is sufficiently advanced that members are able to discuss such a theme. Second, that congenial natures can converse with each other when many miles apart.

I wish to call attention to the histological structure of a tooth and surrounding tissues—not all of the textures, but the capillaries. From a physiological view, the capillaries commence at a point where blood is brought near enough to the tissues to enable them to separate the elements necessary to their regeneration, and to give up the products of decay. (*Flint.*)

The capillaries are those vessels which have but a single tunic, called the endothelial coat, and they are $\frac{1}{3000}$ of an inch in diameter. The endothelial coat is composed of cell plates with an oval nucleus and is elastic. The capillary is so small that blood corpuscles move in a single row, and even become deformed in passing through the smallest capillaries. (*Klein.*)

THE PHENOMENA OF CAPILLARY CIRCULATION.

The corpuscles occupy the central portion, and the plasma forms a clear layer at the sides and seems almost motionless. The blood in the capillaries has no definite direction, at one moment they (corpuscles) move in one direction, and the next moment an opposite current may be seen in the same capillary. The capillaries do not receive the impulse of the heart, and the velocity is generally estimated at one inch in ninety seconds.

CAUSE OF CAPILLARY CIRCULATION

First: The heart's contraction. Second: The reaction of the elastic tissues surrounding the blood current. (*Dalton.*)

Please remember that the vessels which I have described, the very peculiar movement of the blood through them, and the forces which propel the vital fluid, is the means by which the blood gives to the pulp, cementum, periodontal membrane,

alveolar wall and gum tissues the elements which sustain their vital condition.

Now, the point which I wish to make is this: All that is stated above is a condition which we can call healthy, normal, or physiological, and any deviation is abnormal, *i e.*, disease, or a pathological state. The distension of the capillaries, the determination of blood to fill them, the movement of corpuscles so fast that they can hardly be distinguished, the stagnation of the current, the forcing of corpuscles through the vessel-wall, etc.—these deviations from the normal, establish a condition which has four striking characteristics, viz: redness, heat, swelling and pain. This is called inflammation; but to confine ourselves to the term used in the subject, we will call it disease. Now, what will cause this disease? I will say that anything *foreign* to the process which we described as physiological will establish the pathological or diseased condition. The air, food and saliva are foreign to the dental pulp, and when brought in contact, the diseased pulp begins an inflammatory campaign. A nerve broach, the gas from a decomposed pulp, or anything forced into the apical space is *foreign* to the tissue and will be a source of disease as long as it remains.

Now, the question is, how does medicine antagonize this inflammatory condition? Let us call ice, cold water, heat by means of a poultice or hot pillow, creasote, arsenic, nitrate of silver, capsicum or alcohol medicines. We apply these agents externally. How do they reduce or subdue the condition which we style disease?

We have all noticed that a person holds the face to the fire or rests the head on a warm pillow or applies a poultice to relieve the pain.

Can there be any virtue in these applications? Let us note now that in the above examples, *heat is the virtuous agent* and that it exerts its influence on the circulation of the cheek and may antagonize the disease in an exposed pulp or a diseased peridental membrane. We might dismiss the case by saying that this is *counter-irritation*, that is, the heat induces the blood to collect in the cheek and thereby reduce the engorged condition in or about

the tooth. This is a true explanation, but it is superficial, inasmuch as our subject would ask us to tell *how heat antagonizes disease*. We may make an explanation which sounds more scientific, but it tells but little more than the counter-irritation or counter-congestion theory. When heat is applied to the surface of the cheek it paralyzes the nerve filaments which supply the muscular tissue of the vessels before they merge into capillaries—this paralysis overcomes the contractile energy of the muscular tissue—therefore the vessel must expand. So the expansion being followed by a determination of blood to the cheek will reduce the volume of blood in the part which is inflamed. But shall we call this a physiological antagonism between heat and inflammation? Do we not set up a pathological condition in the circulation of the cheek in order to reduce the energy of a pathological condition in the tooth?

A capsicum pad placed on the gum over an inflamed root acts in the same way and admits of the same explanation.

Any irritant, as carbolic acid or nitrate of silver, applied a short distance from the seat of disease will act in the same way if there is not enough used to induce an irritation which is so aggravating as to end in a collapse of the vital processes, *i. e.*, death of the part.

When a person comes in with a raging tooth, the pain is the principal symptom of disease, and if the nerve is exposed we usually proceed to treat the case with creosote, arsenic or some powerful irritant. Here we have such an antagonism between the medicine and disease that not even a pathological state can continue—here the safety of the case depends upon murder, but we can never be charged with incompetency. If nature had supplied the dental pulp with lymphatics—if it ever becomes possible for us to relieve the pulp from the influence of foreign substances—such as pus, serum, extravasated blood, particles of decay, bacteria, pressure from fillings, etc., it will then be proper to discontinue the wholesale slaughter of life within the teeth. The only thing we can teach is *come in time*.

But our subject requires us to explain the antagonism between the medicine we use and the disease.

When an irritant is applied to the tissue, the result is contraction of the arteriole and diminution of velocity in the circulation. If the irritant be powerful as arsenic the contraction is momentary—this is followed by dilatation and increased velocity. Soon oscillation takes place which is followed by complete stagnation. In this condition there is no nutrition and the result is death; the antagonism is so violent that, not only disease, but all life goes down in the conflict.

Dentistry a Distinct and Independent Profession.

BY R. FINLEY HUNT, D.D.S., WASHINGTON, D. C.

Read before the Washington City Dental Society at its 29th Annual Meeting.

From the newspaper reports of the decision of Judge Miller, October 31st, 1895, in the case of Dr. Burke, charged with violation of the district dental law, there seems to be a great misapprehension on the part of the counsel for the defense as to the difference in the character and powers of colleges and universities, as well as to the standing of dentistry among the learned professions and its relation to the medical profession. This want of information seems to be general among the members of all professions and the people of all classes. The object of the writer of this paper is to supply, as well as he can, this information, and in doing so he will consider colleges and universities as literary institutions established and intended to instruct students in the various branches of learning required for their chosen professions or callings, and when they prove themselves properly qualified to attest their proficiency therein by diplomas or certificates, and when so provided to confer upon them the distinctive degree to which they are entitled.

Judge Miller, in his decision, referred to the terms of the charter of the National Homeopathic Medical College, and said: "That under these terms he thought the college could not give a degree in dentistry. The charter mentions nothing of a chair

of dentistry." That is to say, this medical college was chartered, as all medical colleges are, to give a medical education to its students and to confer the degree of Doctor of Medicine on such of them as are qualified to receive it. So a dental college is chartered to give a dental education and to confer the degree of Doctor of Dental Surgery, or its equivalent, on its graduates. These, and all similar institutions, are limited in their power of certification of qualification of their graduates and cannot properly assume to confer upon them the degree belonging to another profession.

On the other hand, a university, as its name implies, is a universal school in which are taught all branches of learning, or the four faculties of theology, medicine, law and the sciences and arts; indeed, it is an assembly of colleges, established in any place with professors for instructing students in the sciences and other branches of learning and where degrees are conferred.

There are about six universities in the District of Columbia, some of which have been in operation for a number of years, while others have not yet been fully organized. Three of these have, each of them within a few years past, established, in addition to their other departments or colleges, a department or college of dentistry, which has its own faculty, its own curriculum, and whose graduates receive the special and distinctive degree of Doctor of Dental Surgery, a degree that is independent of, and not connected with any other one. There is a number of universities in the State that have dental departments or colleges, in all which, so far as the writer of this knows, the same state of facts exists.

These facts undoubtedly give to dentistry, so far as the universities are concerned, a position among the learned professions, and place it on the same plane as the other learned professions acquired in the universities.

Prior to the period of their establishment in universities, dental colleges had been chartered by different States and empowered to give instruction and confer degrees in dentistry, the oldest one, the Baltimore College of Dental Surgery, dating back to 1839. This fact and date, mark the foundation and beginning of the conversion into a profession of what had before

been simply a vocation or calling, or, we may say, the beginning of the birth of a new profession which at this time has all the elements and characteristics necessary to constitute it such. Since that date others have been chartered (some in connection with medical colleges), and now, in 1895, there are forty-eight dental colleges in the United States. Thirty-eight of these are pledged, through membership in the National Association of Dental Faculties, to allow no one to matriculate without first giving proof, by examination or otherwise, of having received at least a good English education, and to exact from every student an attendance on three full courses of lectures and clinical instruction before examination for graduation. The other ten will doubtless soon follow and give the same pledge, as that step is necessary before they can have a recognized standing in proper dental educational institutions. That this pledge will be kept is assured, because any dental college failing to do so will forfeit its standing in the profession.

The members of the dental profession of the United States have been engaged for some years past in the effort to elevate the standard of dental education by improving and unifying the requirements and curriculum of all the dental colleges in the country. As one means to this end two bodies have been formed, the National Association of Dental Faculties and the National Association of Dental Examiners, composed respectively of delegates from dental faculties and from State boards of dental examiners, and meeting annually. They have already done much good, and are steadily accomplishing the object of their organization.

The American Medical Association at its meeting in Chicago, June 10, 1887, adopted the following resolution:

“ Resolved, That the regular graduates of such dental and oral schools and colleges as require of their students a standard of preliminary or general education, and a term of professional study equal to the best class of the medical colleges of this country and embrace in their curriculum all the fundamental branches of medicine, differing chiefly by substituting practical and clinical instruction in dental and oral medicine and surgery

in place of practical and clinical instruction in general medicine and surgery, be recognized as members of the regular profession of medicine and eligible to membership in this association, on the same conditions and subject to the same regulations as other members."

There has been no occasion, so far as the writer of this knows, for the American Medical Association to construe in scope and detail the intention and meaning of this resolution, so that we must be guided in our understanding of it by its language and the circumstances under which it was adopted. It would require too much space to detail the circumstances existing at the time. It will be sufficient to say that there was then a crisis which seemed to call for some such action. The American Medical Association gracefully met the crisis by voluntarily adopting the above liberal resolution.

The resolution conceded that the education acquired in a dental school or college conducted as most of them were at that time and are now, was such as to entitle its graduates to honorary membership in the regular medical profession and to eligibility to active membership in the American Medical Association. That association could not confer upon dental graduates the degree of M.D., nor could it authorize them to practice medicine. Its action was, then, plainly an acknowledgment that the education acquired in certain schools and colleges, other than medical ones, was as much of a professional one as that acquired in medical colleges, and, therefore, constituted the graduates of such schools and colleges members of a distinct and independent profession, whom by virtue of such education and membership it admitted to honorary membership in the regular medical profession and declared eligible to membership in its organization. This seems to me to be the only proper construction and effect of the resolution, which reflects credit on both professions—the older one for its liberality, and the younger one for its attainments. In the same year dentists were, by virtue of the degree they hold from dental colleges, admitted to membership in the International Medical Congress at its meeting in Washington City.

In the District of Columbia practically, and in many of the States by enactment, members of the dental profession are exempted from jury duty, as are those of the medical and legal professions.

Congress and nearly all the State Legislatures have enacted dental laws requiring a thorough dental education on the part of any person desiring to commence the practice of dentistry, and have provided for the appointment, in each of their several jurisdictions, of a Board of Dental Examiners, whose duty it is to see that the applicants for license to practice dentistry possess the requisite education, and whose approval and certificate to that effect are necessary before such applicants are allowed to practice.

From this statement of facts, historical and current, it will be seen that dentistry is, by competent authorities, acknowledged and regarded as a profession equal to, and independent of all others, and that its qualifications, acquirements and equipments—scientific, artistic and organic—entitle it to the fourth place in the family of the learned professions, the other three being those of medicine, law and theology.

The Originator of the Quinine Industry.

The *Agricultural Gazette*, of New South Wales, states that there is still living at Kenmore, in excellent health, Mr. Charles Ledger, the man, who, forty years ago, after most perilous adventures, introduced the variety of cinchona calisaya known as ledgeriana into the island of Java. Messrs. Howard & Sons, the great quinine firm, say that the supply of Peruvian bark from Java is almost all from the ledgeriana trees, the only complaint against this variety being that it has turned out so rich that the trees are supplying too much quinine for the world to consume. Perhaps the quantity of bark which is now produced every year from seed furnished by Mr. Ledger cannot be short of ten million pounds, and to him, more than any one else, perhaps, is due the fact that quinine has been brought within the means of the very poorest.

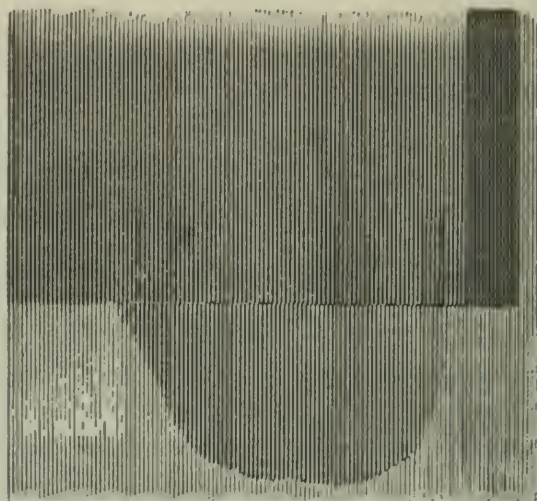
Shadowgraphs without the Crooke's Tubes.

BY JOHN L. GISH, M.D., D.D.S., JACKSON, MICH.

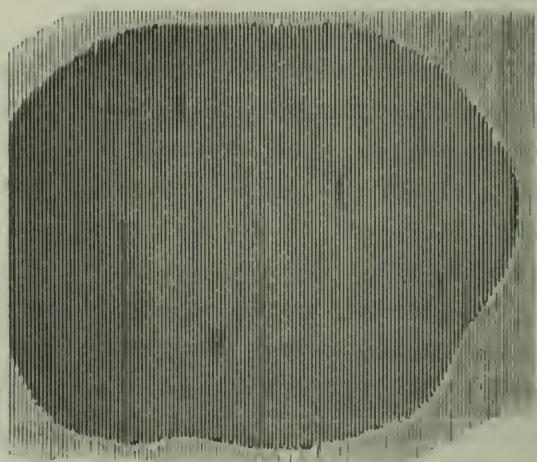
Since the discovery of the X rays by Prof. Roentgen, I have been deeply interested in the subject of shadowgraphs, and have accomplished something entirely new therewith. It is always good law to produce results in the most simple way; hence, after reviewing the subject of shadowgraphs, and how produced, it soon occurred that the Leyden jars, the Crooke's tubes, the Geissler tubes, etc., actuated by the static machine, or the Ruhmkorff coil, and a plant of batteries and other costly apparatus were not necessary for success in this direction, and that one could produce shadowgraphs by means of the X rays, from the common sources of light which surround us on every hand. It is this principle of making shadowgraphs by means of the X rays, from other sources than the Crooke's tube and its necessary complicated apparatus, that I have succeeded in establishing by producing the required results on photographic plates, covered by heavy felt, layers of paper, thick, heavy, cardboard, etc., taking the source of light from the ordinary incandescent lamps which are used to light our homes.

This is how the shadowgraphs below were produced: Into the photographic plate-holder were placed two sensitive plates, which, under ordinary conditions, were thoroughly protected from all sources of light. To add still greater protection the plate-holder was covered with two layers of manila paper, and then a layer of thick, heavy, blue felt. Between the layers of paper and felt a silver dollar was placed; on the outside of the felt a piece of plate glass, in an upright position was placed, thus making the two objects occupy different relative positions. Above all, and within a focal distance of two inches, an ordinary 16-candle power incandescent lamp was horizontally placed; then, in order to confine the rays and protect from any external influences, the lamp and all were covered with many layers of cloth and paper. All being in readiness the light was turned on, and an exposure of fifty minutes was allowed. At the end of this

time, the plate-holder was removed and the negatives developed, so that they could be brought to the open air and thoroughly examined.



While the outlines of the shadowgraph on these plates are not as sharply defined as I would like, yet that imperfection can be corrected by proper manipulation of the light, and it does not alter the scientific principle established.



Both of the plates were acted upon at the same time. Plate No. 1 has the images quite defined, but Plate No. 2, while it shows but little to the eye of the public, is more interesting from a scientific point of view, and one reason why it is so, is as follows:

Before Plate No. 2 could be acted upon, in the smallest possible degree, the X rays had to penetrate the heavy felt, nearly one-eighth of an inch thick, two layers of paper, one layer of cardboard one-eighth of an inch thick, through sensitive Plate No. 1, then through another layer of cardboard one-fourth of an inch thick to the sensitive Plate No. 2, producing a molecular change, or a rearrangement of the conditions therein, and all from so common a source of light as an incandescent lamp.

“Beyond the satisfaction of having produced shadowgraphs, by other ways than those put forth by Prof. Roentgen, we may ask, what is there in it for the public?” “The answer to this question is two-fold.” “In the first place, it proves that the source of the X rays is not confined to the Crooke’s tube and its accompaniments. But that we may obtain the mysterious something from the incandescent lamp, and reasoning from analogy, we have the same energetic, deep penetrating rays from the greatest of all sources of light, namely, the sun. I think also that I might add another source of supply, to come from the electric arc light, but I am not so sure about that as yet. The second part of this question concerns the public more deeply, for it comes under the domain of health and disease. It is much beyond the limit of this article to treat the subject in full, but I will make a suggestion or two and then close. For the last five or six years I have devoted as much time as I could, aside from my present specialty, to the study of electricity and its applications to the human body in overcoming certain forms of disease, and the one subject of electric-light bath, as a substitute for the sun bath, has commanded no small amount of my time and attention; what I have been able to do myself, coupled with the results of other men, has proved the value of such a bath. I must confess that such baths have been used more or less empirically; we simply knew that good results did come, but we did not know why, but now the shadowgraphs on the sensitive plates will undoubtedly help us to analyze this special class of work; it will make us better masters of the subject, and allow us to limit and increase our lines of action; hence, the public benefit.”

“With regard to shadowgraphing the different internal struc-

tures of the body and locating diseased portions and foreign substances?" "There is not any question, from what has been accomplished, that with plenty of power to produce the X rays, and handled in the proper manner, but that we can project them clear through the human body. But I believe to locate foreign substances, and to outline diseased portions of our body, direct illumination of the parts or structures will give far better results, just as you can look through the finger."

With a one-half candle power-electric lamp, placed just in the proper position, and should there be any diseased portion or foreign substance in the finger, even an unexperienced eye could locate it at once.

SELECTIONS.

Shun Bolted Flour—Dr. John Ellis Tells Why Americans Lose Their Teeth at an Early Age.

BY JOHN ELLIS, M.D., IN NEW YORK RECORD.

What Dr. V. C. Bell is reported to have said in the *Recorder* of November 29th every careful observer can see to be correct, and, further, it is not simply the teeth of the rising generation which suffer, but also the bones, muscles, digestive organs and brain. Why is all this physical degeneration of our young people? We have not to look far for one of the chief causes. Many of our children are half starved, and some of them starved to death.

"Starved! Why, she eats enough!" exclaimed an astonished mother, when I told her that her young daughter was starving to death. There she lay helpless upon the bed, not able to turn herself, and with some symptoms of scurvy, but in good flesh. I quietly asked the mother what she ate. She replied: "She eats toast made from the very best superfine white flour. If she eats anything else she throws it up." I directed

her mother to mix mashed potatoes with the flour from which she made her bread. She did so and the child recovered rapidly.

Careful experiments, made by Magendie and others, have demonstrated that animals can only live for a few weeks if fed only on superfine white flour, whereas, they can live and thrive on unbolted flour or meal without any trouble. The Lord intended the grain, as a whole, for human food, and He manifestly knew what he was doing when he created our cereals. The food required to nourish the teeth, bones, muscles, stomach, to enable it to properly digest our food, and the brain, is found in excess in the dark portion of the kernel which lies immediately beneath the hull, and the miller, in bolting, separates this portion as far as he can, and most of it is fed to cattle, horses, hogs, etc., and they have good teeth, muscles, stomachs and bones when thus fed.

The white portion of the kernel from which white flour is made contains an excess of starch, principally a heat and fat-producing material when taken as food, so that the whiter the flour the poorer it is. One simple fact ought to satisfy every intelligent man and woman that superfine white flour is not fit for human use, and that starvation must inevitably follow, to a greater or less extent, its use as food, viz., there is very little difficulty in keeping superfine white flour free from insects, must or mould, whereas it requires care and watchfulness to preserve unbolted flour and meal free from insects, must, etc. Do we want to feed our children upon a flour that will not sustain, for any considerable length of time, animal, insect or even vegetable life?

Dyspepsia is more prevalent in our country than, I think I can say, in any other. Superfine flour does not contain the nourishment required by the stomach to enable it to digest food. The prevalence of dyspepsia in our country and England has led a number of medical writers in England and in this country, of late, to condemn the use of all cereals—wheat, rye, oats, etc.—as food, claiming that the starch overtaxes the stomach, and that we should use as food nothing but nuts and fruits, and if we find them not sufficient we should use a little meal or animal food,

they think. But if we use the dark or coarse portion of the grain as well as the white, the stomach will be nourished, the whole grain will be digested, and it will not cause dyspepsia.

In cases of irritable or weak stomachs from the use of superfine flour, it will be well to sift out the coarsest of the bran for a time, until the stomach gains strength. Cases of dyspepsia have been cured by simply boiling the wheat for a few hours and then eating, it chewing it carefully. Banish superfine flour, and bread and cakes made from it from our land, or from use in our households, and there would be a wonderful change for the better in the development of the young, not only as to their teeth, but also as to all the structures of the body. No parent who cares for the development, health and comfort of his or her children should, in my estimation, ever allow a single pound of superfine flour, or bread or cakes made from such flour, to enter his or her house.

Having constantly in view the development and health of our race, I have traveled over our own country from the East to Alaska and California in the West, and Florida in the South, over most of the countries of Europe, Egypt and Western Asia, and I can say, as a result of my observation, that wherever the people eat, instead of superfine flour, the meal or flour of the whole grain, be it wheat, rye, oats or barley, they have good teeth, are well developed, and are rarely troubled with dyspepsia. For more than forty years I have carefully avoided the use of superfine flour, stimulants, narcotics and condiments, excepting sugar and salt, and although my eightieth birthday passed two days ago, I rarely, if ever, fail to have a good appetite, and my food tastes as well as it did when I was a boy, and I have more than half of my teeth left.

SIXTY-FIVE great trunk lines of railway have laws forbidding their employes to enter saloons or drink spirits of any kind while on duty. Ten of these roads have rules discharging without question any of their employes who frequent saloons.

Child-Study.

There exists in the city of Chicago, and similar organizations can probably be found in other centers, a society for the promotion of child-study. While the leading idea of such study is undoubtedly psychologic, the subject is suggestive in a medical point of view, and may well be worth an editorial comment in a journal that only deals with psychologic questions in their specially medical aspects and bearings.

There is no period of life when mental and physical development is as rapid in childhood, and therefore there is none more interesting in a physiologic as well as in a psychologic point of view. Physicians have studied children in their pathologic peculiarities; pediatrics is a recognized medical specialty, but it is a reasonable question whether it might not be as well to widen its scope and take into it some attention to the unfolding of the intellectual life in its beginnings. The skilled medical practitioner can better than any one else first take note of and point out the way of correcting the morbid traits and tendencies that lead to physical and mental degeneracy; he can study and estimate the hereditary influences and advise how they are to be met, and can instruct the mother in what should be the most fascinating pursuit of her life, the proper method of studying the development of her offspring. These are the possibilities of his profession; we do not say they are generally or even often realized.

Considering, however, only the physical side of the question of child-study, it is not a credit to our profession that while the studies of the growth and the physical data of childhood are being taken up by laymen and educators it should be in any degree behind them in the same line of investigation. While physiologists were ahead of psychologists in recognizing the value of knowledge of the earliest developmental processes and conditions in the study of functions, it seems now that the newer school of psychologists, enlightened by the data of physiology, may in their turn put practical medicine under obligations for important facts and deductions. Sometimes they may be on the wrong track, or on one that is uncertain, but they are always suggestive and instructive in their modern methods.

The practical value of child-study should be evident to any one. The old saying that "as the twig is bent, the tree is inclined," so often quoted with a moral application, has a physical and intellectual appropriateness as well. Hence, every real acquisition of fact or legitimate theory in regard to the bodily or mental development of children has its value, and there is an ample store of such facts yet to be acquired. At the present time we may take, for example, the theories of mental and bodily degeneracy that are just now so much to the fore, and it is easy to see that they can only be proven or disproven by taking into consideration the earlier conditions of the individual and the influences that affected his development. The question as to the existence of such a type as the "born criminal" is, as might be inferred from the term itself, one that can only be settled by the study of the development and beginnings as well as the finished type; in short, by a study of the morbid tendencies and moral development of the child. As an almost purely medical line of investigation, and not the least important may be mentioned that of heredity in children, which can hardly be studied by any one so well as by the general practitioner—the family physician. Galton has laid down a plan for this line of research in his "Natural Inheritance" that is at least worthy of some consideration. The amount of valuable facts and statistics that could be obtained from a general interest in this study in the medical profession can hardly be over-estimated. Other interesting questions are some of those of the origin of insanity, especially those forms that seem to be more or less dependent upon errors of education and training and management of developmental periods, and here well-directed attention to the facts of early life will be found to be productive of valuable results. It is not meant to be understood that these questions are neglected by physicians, but more systematic study of all the stages of early human development is needed to fully elucidate them.

It is noteworthy that this whole subject of child-study is comparatively of modern development. If we look over the bibliography as given in the report of the Commissioner of Education for 1892 and 1893, just issued from the Government press, we

find comparatively few works dating back more than twenty years, and most of the papers bearing directly on the subject have appeared within the last decade. While it is likely to continue to be for the most part a specialty of educators and psychologists, it is to be hoped that our profession will not too much neglect the special opportunities it has in this particular direction.—*The Journal of the American Medical Association.*

Effectual Treatment of Acute Alcoholism.

A young wife had just settled in her new home. All seemed fair and promising, but one night her husband came home very late and staggered into the house. His wife was greatly shocked, told him he was ill and to lie down at once. He did so. His face was reddish-purple, his breathing heavy, and altogether he was a pitiable-looking object. Mustard plasters were applied to his hands and feet. When the doctor came, felt his pulse, examined him, and found that he was drunk, he said :

“He will be all right in the morning.”

But the wife insisted that he was very ill and severe remedies must be used.

“You must shave his head and apply blisters,” she urged, “or I shall send for some one who will.”

His head was accordingly shaved closely and blisters applied. All night he lay in a drunken sleep, notwithstanding the blisters.

About daylight he awoke to a most uncomfortable consciousness of blistered agonies.

“What does this mean?” he said, putting his hand to his bandaged head.

“Lie still; you mustn’t stir,” said the wife. “You have been very ill.”

“I am not ill.”

“Oh, yes, you are; you have brain fever. We have worked hard with you all night.”

“I should think you had,” groaned the victim. “What’s the matter with my feet?”

“They are blistered.”

"I am better now. Take off the blisters; do," he pleaded, piteously.

He was most uncomfortable; his head covered with sores and his hands and feet still worse.

"My dear," he said, groaning, "if I should get sick in this way again, do not be alarmed or send for a doctor, and, above all, do not blister me again."

"Oh, indeed, I will. All that saved you were the blisters; and if you should have another spell, I should be more frightened than ever, for the tendency, I am sure, is to apoplexy; and from the next attack you will be likely to die unless the severest measures are used."

From that day he has never had another attack of drink.—*Dover Journal-Annals of Hygiene.*

Solutions.

The calculation of percentage solutions is always based upon the number of grains of water in a fluid ounce. The exact weight is four hundred and fifty-five grains, and the simplest way is to multiply this number by the percentage desired. In other words, we take one grain of the drug for every hundred grains of water. Thus to obtain a four percent solution, we multiply four hundred and fifty-five grains by four percent, which gives eighteen and two-tenths grains, or, roughly speaking, eighteen grains to the fluid ounce of water.—*Medical Brief.*

The Best Antiseptic.

Dr. J. B. Walker, of Indianapolis, Ind., after several years' use of Listerine, says he considers it the best antiseptic and prophylactic we have.

WHEN patients complain almost continuously of toothache or sensitive teeth, it is usually an indication to administer the phosphate of lime.

Alcohol and Happiness.

The body uses its powers in resisting the outside forces which act upon it. Normally, there is a balance between body and environment. If environment prevails we are discouraged; if we are able to prevail, our spirits rise and our happiness grows. And it is not for the moment only, but we compare the accumulated impression of the powers outside of us with the powers which our brains develop, and are happy or unhappy according as we feel our superiority or otherwise. Just how much does alcohol interfere in this balance of power? It clearly can not lessen the power of outside influences which harm us; it can as clearly not increase our own powers in so far as they enter into this conflict with the outside world—it rather makes us less skillful and able. What can it do, then? It can deceive us. It dulls our appreciation of powers outside of us until they seem so much smaller that we are sure we can conquer them, and so we gain a feeling of satisfaction. Nine-tenths of those who take strong drink seek this feeling in alcohol. This is their “refreshing” at eventide, their “rest from the day’s cares,” their forgetfulness of sorrows; but it rests upon a deceit, and at the least trial falls into ruin. He who to-day forgets is not any stronger to-morrow, and so is constantly tempted to a new appeal to his false friend until his senses are so dulled that every duty is forgotten. His holiest interests are but shadows and mist before his eyes, and he knows nothing more but thirst for the deceitful drink. Even the defenders of alcohol at last call a halt; but they have forgotten that the first steps are much more easily undone than the later ones, when the brain has in a measure lost its power to control. They do not forget through malice, but because they have not rightly understood the physiological effect of alcohol.—DR. JUSTUS GAULE in *Popular Science Monthly*.

It is said that the tendons found in the tail of a dog make better sutures than either catgut or kangaroo tendon, when properly prepared in sublimate.

Surgical Uses of Cocaine.

Medical and Surgical Reporter states that Dr. D. B. Merrill Ricketts has employed cocaine in an extensive variety of operations, and offers the following practical maxims as to its methods of application :

1. Solutions should not be made except at time of operation.
2. Cold water solutions will add materially to the good effects of the cocaine.
3. An operator should accustom himself to but one kind of cocaine, and confine himself to the use of that kind as he does chloroform.
4. The operator should prepare the solution himself, and not intrust it to an assistant.
5. Only small amounts should be used, especially in the young, the old, and in highly nervous persons.
6. Small quantities should be used in operations upon the face, head and neck.
7. Operations should be made as soon as possible after the area has become anæsthetized that as much as possible of the solution may escape through the wound, and thus not enter the general circulation.
8. The finest needle should be used, and its length should be sufficient to traverse the line of incision intra-cutaneously with but one puncture.
9. Intra-cutaneous and not sub-cutaneous injections should be made, because there is less of the drug absorbed, and because there is no pain to result from cutting tissue beneath the integument.
10. The nearer the injection is to the end of the member the less is the amount of absorption.
11. The prepuce, fingers, toes, hands and feet can be constricted in such a way as to prevent, to a considerable degree, the entrance of the solution into the general circulation.

Comparative Vitality of the Sexes.

It is the common impression that men are not only less subject to illness but are longer lived than women. The life tables of insurance companies, however, show that the term of life of women is slightly longer than that of men. The difference in the mortality rates during the first few years of life is striking. During the first year the mortality among males is decidedly greater than among females. Although more boys are born than girls, the proportions are reduced to almost even terms at the end of the first year by the excessive male mortality. Even during the first four years the mortality among males exceeds that among females, notwithstanding the fact that there are practically no distinctions made in the management of the two sexes. Both are subject to the same conditions, are dressed virtually the same, and receive the same food. At about five years the comparative death-rate among girls begins to increase. This has been attributed to the fact that boys of this age are more in the open air. The mortality in both sexes diminishes from this time until the twelfth year, when it attains its lowest point. It then steadily rises, being larger in each successive year. Between the twelfth and sixteenth years the death-rate among girls increases more rapidly than among boys, but after the sixteenth year, for several years, the rate of increase is more rapid on the male side. The explanations that have been offered for these peculiarities are not wholly satisfactory; but one fact is clear, that during early years, females possess a greater tenacity of life than do males.—*Maryland Medical Journal*.

Potassium Iodide.

Dr. Stengel administers potassium iodide as follows:

To two ounces of milk add two drachms essence of pepsin and one grain potassium iodide.

This forms a junket that effectually disguises the disagreeable taste of the iodide.—*Med. World*.

“Anything to Get Well.”

BY FRANCES J. DYER.

How often we hear persons who are partially ill, exclaim, in tones as if they felt themselves abused: “I would do anything to get well.” Yet, when we come to probe their mode of living, we find that self-gratification in some form, and usually that of the appetite, lies at the root of their ailments. The sufferer seeks change of scene and climate, flees to Nice or Los Angeles, or wherever the fountain of health is supposed to be situated, ignoring the fact that the fundamental change must begin with themselves and not with external conditions.

Perhaps the system cannot receive coffee without detriment. Yet, let the physician prohibit its use and at once the patient cries out: “O doctor, don’t ask me to give up my coffee. Why, I couldn’t make a meal without that!”

Or perhaps an excess of sweets is undermining the constitution. We know a woman who buries her morning cereal with sugar, finishes her breakfast with doughnuts or cakes, uses three times as much sweetening in her beverages as she ought, and as a consequence is troubled with nervousness, constipation, irritability and sleeplessness. Friends remonstrate in vain. She resents interference and insists that her diet has no connection whatever with her condition. She will take medicine when prescribed by a physician, but she will not deny herself the pleasure of eating sweets.

A certain business man in Boston is what is called “a high liver.” He uses neither wine nor tobacco in any form, but his table is loaded with a variety of the choicest food. He claims that his active life demands a generous diet and that so long as the viands are properly cooked no harm can result from what—to speak plainly—is refined gluttony. But every few months he has an acute attack of intestinal disorder accompanied by excruciating suffering.

The wise old specialist who is called to attend him, and who charges an enormous fee for his services, prescribes but a modi-

cum of medicine, and limits his patient to a strict diet of dry toast and water for several days. Nature thus has a chance to throw off the superfluity which has deranged the system.

A teacher in the sciences in a private school in New York was demonstrating to her pupils the indigestibility of a certain toothsome dish, when one of the young ladies said deprecatingly: "Oh, but it tastes so good. You couldn't ask us to give up eating that."

Such cases could be multiplied indefinitely, but these are sufficient to show that people are willing to do "anything to get well"—or to keep well—except to surrender their pet tastes in food and drink. If they do not break down altogether in health they are only half well, and are forever making some outward application or taking some internal remedy to improve their condition.

The price of health is obedience to natural laws and that often means the sacrifice of desires which are in danger of enslaving the life with fetters like iron. But law will not compromise. It says: "Eat and drink indiscreetly if you will, give the rein to passion, cheat your lungs out of their quota of fresh air, dress unhygienically; but know that for all these things, sooner or later, you will be brought into judgment."

With the greater intelligence which prevails to-day in respect to dietetics there is need also of developing more power of self-control over the appetite. Lack of this is like the little crevice in the dyke which lets in a devastating flood of physical ills.—*American Kitchen Magazine.*

PROF. GRAY has recently adopted a very satisfactory method of using gutta-percha. After drying the cavity he saturates it with common resin cut in chloroform and then presses in heated gutta-percha. It adheres to the wall like cement and does not pull away. He has found it very satisfactory in the mouths of his own children where he has the opportunity of observing it closely.

Fate of a Famous Health Resort.

Forty years ago Mentone was a healthy village in France, where lived peasantry happy in their farms and their superb physical state, conditioned by the climate. It was discovered that the region was a most healing climate for consumptives, and it became the Mecca for the unfortunates of Europe so stricken. The inhabitants abandoned their farms to wait upon the strangers. The strong, healthy women forsook their dairies and became the washerwomen of the consumptives' clothes. No precautions were taken; the disease was not then understood as now, the theory of the tubercle bacillus not having been discovered. The place to-day is bacillus ridden, a pest-hole, death itself. The hitherto strong inhabitants are emaciated, a coughing, bleeding people, filled with the germs of consumption. The soil and the air are both contaminated with them. It is no longer a resort. The same fate, it is believed, awaits many other similar health resorts unless active means are taken to destroy all germs. This will be a most difficult task, because consumptives themselves, as a rule, are not thoughtful of the danger they spread, or of the rights of others. They should bear in mind that if all others had been careful they, too, might have escaped.—*Journal of Hygiene.*

Ill-Temper a Symptom of Excessive Meat-Eating.

One deplorable result of excessive meat-eating in England is the ill-temper which is a chronic moral complaint among us. In no country, I believe, is home rendered so unhappy and life made so miserable by the ill-temper of those who are obliged to live together as in England. To everybody who read these lines examples will occur of homes which are rendered quite unnecessarily unhappy, when they might be happy, by the moroseness and rudeness of the head of the family, by the peevishness of the wife, or by the quarreling of the younger members.

If we compare domestic life and manners in England with those of other countries where meat does not form

such an integral article of diet, a notable improvement will be remarked. In less meat-eating France urbanity is the rule of the home; in fish and rice-eating Japan harsh words are unknown, and an exquisite politeness to one another prevails even among children who play together in the streets. In Japan I never heard rude, angry words spoken by any but Englishmen. I am strongly of the opinion that the ill-temper of the English is caused in a great measure by too abundant meat dietary combined with a sedentary life. The half-oxidized products of albumen form urates and uric acid, which, circulating in the blood, produce both mental and moral disturbances.—MRS. ERNEST HART, in “*Diet in Sickness and in Health*,”

The Prevention of Consumption.

Dr. B. W. Richardson, in a late number of the *Asclepiad*, states that an observation of the following rules will benefit those having a tendency toward pulmonary tuberculosis:

1. Pure air for breathing is the first rule for the prevention of consumption.
2. Active exercise, outdoor as much as possible, is essential for the prevention of consumption.
3. Uniform climate is important for consumptives.
4. The dress of the consumptive should sustain uniform warmth.
5. The hours of rest should be carefully regulated by the sunlight.
6. Outdoor occupation is preventive.
7. Amusements of consumptives should favor muscular development and sustain healthy respiration.
8. Cleanliness in the broadest sense is of special moment.
9. Every precaution should be taken to avoid colds.
10. The diet of consumptive people should be ample, with full proportion of the respiratory foods.—*Indian Lancet*.

Biting the Nails.

Dr. Bertillon, as the result of an extensive inquiry, confirms his previously expressed opinion that onychophagia and similar habits are generally associated with degeneracy. The frequency of onychophagia varies greatly in different institutions. In some, two or three out of every ten children are addicted to biting their nails. A careful examination invariably reveals signs of degeneracy. The children are usually less healthy in appearance than others, presenting deformities of the skull and anomalies of the teeth and ears. In such subjects the teachers notice a marked antipathy to physical exercises and games requiring effort. They write poorly, and show marked inferiority in respect to manual dexterity. They are slow to learn; they are incapable of continuous application; in fact, they always exhibit an inferiority in some direction or other. The disciplinary measures usually resorted to, to correct bad habits are powerless in this; in the majority of cases only hypnotic suggestion seems to be capable of effecting a cure. The habit of biting the nails sometimes persist until late in life.—*Med. Fortnightly.*

Pregnancy and Dental Caries.

Dental caries is a disease characterized by molecular disintegration of the normal constituents of the teeth, and is probably more liable to occur during pregnancy; it is caused by the same processes which produce lactic acid, which latter in turn decalcifies the enamel and exposes the dentine. There is evidence to prove also that the saliva is more acid during the period of gestation than at other times; which, if true, is probably due to changes in the blood whereby its alkalinity is diminished. The analogy between this and the lithemic condition is striking.

It is improbable that lime salts are abstracted from the teeth to supply the needs of the growing fetus; more than enough phosphates are ingested to supply the needs of both mother and child, hence maternal teeth do not suffer from lack of nutrition;

again, during gestation osteophytes are found, evidencing an excess of lime salts in the system.

Vomiting of pregnancy, while it may to some extent aid, cannot be considered a potent factor in the production of dental caries; neither can neglect of the teeth during pregnancy be proved to be more prevalent than at other times.—*Peterson.*

Unprofessional Conduct.

What constitutes unprofessional or dishonorable conduct? is the question asked by the *Atlantic Medical Weekly*, which proceeds to answer as follows:

The words "unprofessional or dishonorable conduct" are declared to mean:

1. The procuring or abetting in procuring a criminal abortion.
2. The employment of "cappers or steerers."
3. The obtaining of any fee, or the assurance that a manifestly incurable disease can be permanently cured.
4. The willful betrayal of a professional secret.
5. All advertising of medical business in which untruthful and improbable statements are made.
6. All advertising of any medicines, or of any means, whereby the monthly period of women can be regulated, or the menses re-established, if suppressed.
7. The conviction of any offense involving moral turpitude.
8. Habitual intemperance.

If every person who recommends in an advertisement the use of any medicine which will do either of these things is considered as practicing medicine, the time is not far distant when the press will be purged of one of the most flagrant forms of quackery.—*St. Louis Med. and Surg. Journal.*

HARVARD Medical Faculty has decided that after June, 1901, candidates for admission to the medical school must present a degree in arts, literature, philosophy, science or medicine from a recognized college or scientific school.

The Risks of Anæsthesia.

It is stated that sixty-one deaths have occurred within the past year in the United Kingdom, of which fifty-two were from the administration of chloroform. This would be a fearful indictment against the use of that anæsthetic if we only knew what was the relative proportion of the patients submitted to its influence and to the influence of other anæsthetics. In other words, if the number of chloroform cases were fifty-two times the number of nitrous oxide cases chloroform would be no more dangerous, although it might have caused fifty-two deaths for one death caused by the latter anæsthetic.—*Med. Press and Circular.*

Arsenical Poisoning.

“Arsenic has been found in the urine when the source from which it came was not discovered.”

“To see if any arsenic could come from the temporary fillings used by dentists I have made twelve examinations of gutta-percha stoppings and oxyphosphate cements, finding arsenic in nearly all of them, writes William H. Rollins to the *Boston Medical and Surgical Journal*. “To confirm the experiments, I have sent a sample of the cement I most frequently use in filling teeth to Dr. Hills, of the Haverford Medical School, who found one part in twelve hundred of arsenic. As these fillings are constantly dissolving and wearing away in the mouth, minute amounts of arsenic must go into the system in this way.”

The above is a clipping from an exchange, the statement contained in which, will be a surprise to every dentist. Few, if any, have ever thought of arsenic being found in gutta-percha or in oxyphosphate of zinc, as used for filling teeth. An analysis was recently made of five samples of oxyphosphate, in only one of which was there found the slightest trace of arsenic, and in the gutta-percha material not the slightest trace detected.

It is difficult to imagine how arsenic could be present in these materials, and especially in the gutta-percha fillings. There is

of course, a possibility that a trace of arsenic might be present in the oxyphosphate having been conveyed there in the zinc from which the material is prepared, and even were it in a relatively considerable amount in the metallic zinc, it would almost certainly be driven off by the heat employed in producing the oxid of this metal. Even admitting the presence of the amount above indicated, no mischief would be likely to occur from it, for only that on the surface of the filling could, by any possibility, be taken up by the patient, and this would be so small that it is hardly conceivable that it could make any impression upon even those most susceptible to the influence of this agent. Arsenic is used for medical purposes in vastly larger quantities than would be possible, in this way, without even a trace of its injurious influence.—[ED. REGISTER.]

Elimination Through the Stomach.

Experiments have been made recently on healthy dogs to determine what substances find their way into the stomach when introduced into the system by rectal or hypodermic injection. The alkaloids discovered in the vomit withdrawn mechanically from the stomach were morphin, brucin, veratrin, caffein and quinin. There was absence of atropin and apomorphin. Other substances found were salicylic acid and antipyrin. Phenic acid was not eliminated by the stomach. Still other substances noticed were chloroform, chloral hydrate, methyl alcohol ethyl alcohol and acetone. The methyl alcohol was administered in a rectal injection. It was mostly eliminated in the urine the day after the injection. These substances found their way into the stomach through the blood in some cases, but Grutzner's recent experiments show that there is an antiperistaltic action of the bowels to which may be due the presence in the stomach of some of the substances introduced into the rectum.—*Schmidt's Jahrbch.*, 1895, No. 11; reviewed in *Les Nouv. Remedes*, January 8th, 1896.

Neuralgia.

I was called to a case of "neuralgia of the fifth pair," which had been giving a patient much trouble for months, and the resident physician had been in the habit of using hypodermic injections of morphia, which would end an attack of this stubborn pain, says a writer in the *Medical Brief*. Unfortunately for me, I discovered my hypodermic tablets of morphia were *non est*.

I called for hot water and got my syringe heated, and used the syringe full of simply hot water, and in five minutes my case was at ease.

What cured the case, heat or water? I have often repeated it since, and it has at all times given me success. What is the therapeutic action, is it heat or water?

Liquid Air.

Professor Dewar has exhibited at the Royal Institution the working of a new apparatus for the production of liquid air with a degree of ease not hitherto attainable. Around a cylindrical vacuum-jacketed vessel Professor Dewar closely coils a metallic tube. This is inserted into a second vacuum-jacketed vessel, the result being that the metal tube is protected from external heat by a vacuum both inside and outside the coil. The inner end of the tube has a pinhole orifice which acts as a stopcock, and the outer end is connected to a bottle of condensed air at a pressure of, say 200 atmospheres. On opening the stopcock of the air reservoir, the condensed air passing through the coil to the bottom of the outer vacuum vessel is enormously cooled by expansion on passing the pinhole. It has no mode of escape, save by forcing its way upward between the metallic coil and the glass walls which surround it outside and in. By its passage the coil is powerfully cooled and the condensed air passing through it reaches the nozzle at a lower temperature than before. After this process has been carried on for a few minutes liquid air makes its appearance at the nozzle and collects in the outer

vacuum vessel, where, in a few minutes more, quantities of 70 or 80 c c, can be obtained with ease. The process is facilitated by cooling the condensed air on its way to the coil, as by passing the tube through solid carbonic acid. With this refinement liquid air appears in three or four minutes, and collects with great rapidity. The new apparatus does not appreciably reduce the heavy expense incident to experiments at low temperatures.

Separation of Teeth.

BY T. F. CHUPEIN.

Rubber for separating the teeth is little used on account of its great activity and of its disposition to work its way toward the neck of the tooth, thereby pressing on the gum and causing considerable pain. Yet rubber is made in special forms and used for this purpose still. This style of rubber often gets quite stiff, hard and rotten, making it, when wanted, unfit for use. Rubber-dam is always at hand, is always fresh and always ready for use. If a piece of this be *twisted in a roll between the thumb and fingers* it can be made in any size necessary for the case in hand, and being thus made cylindrical, is in the best form for application. Three, four, five or a dozen turns can be made of a small discarded piece of an inch square to place between the teeth to effect their separation.

CHILDREN'S FOOD.—Dr. Allen does not approve of giving little children coarse, hard food to masticate. The temporary teeth are not suited to that purpose from their brief duration, during the early part of which the roots are undeveloped, and the teeth not firmly fixed in the alveolus, while during the latter portion of their retention the roots are being absorbed, the edges having sharp, jagged points not fitted to bear the pressure of excessive mastication. The effort being painful, the child swallows its food as best it can, and the foundation for dyspepsia is early laid.

The Triumphs of Electricity.

The triumphs of electricity in the domain of practical science exceed all expectation. It is converting clay into aluminum, by Hall's process, at so small a cost that it promises to supersede all other metals in the industrial arts. An electrician, in Tennessee, has taken out a patent for the destruction of weeds along railway lines by electricity. This seems to foreshadow its use for a like purpose in agriculture. A Milwaukee inventor burns bricks in three hours and a half by means of an electric current. In France some of the tanneries are already completing by the electric method in four days the tanning process which used to occupy eighteen months; and in both France and England electricity is being successfully employed in purifying sewage and generating ozone, while a medical practitioner, of high repute in the United States, does not hesitate to declare that "whenever medical electricity shall be generally adopted in practice, ulcers and abscesses will be as rare as comets."—*Indian Lancet*.

To Estimate the Dampness of a House.

Physicians are sometimes requested to estimate the relative dampness of an apartment or room. This is not always easy by simple inspection, as a room may be damp although saltpeter does not grow on its walls or mould in its corners. The following is an exact means of appreciation, and one that is within every one's scope. In the room in question a kilogramme of fresh lime should be placed after hermetically closing doors and windows. In twenty-four hours it should be weighed, and if the kilogramme has absorbed more than ten grammes of water (that is, more than one percent), the room should be considered damp and classed as unhealthy.

The question of the dampness of dwellings is a frequent cause of dispute between landlord and tenant, naturally solved in the affirmative by the latter, and in the negative by the former. The

question can be settled in the future by the test of the hydration of lime, of which I have just spoken, and which will give irrefutable proof of the validity of such complaint.—*European Edition N. Y. Herald.*

The Secret of Centenarianism.

A "chiel" from *Tit-Bits* has been with Sir Benjamin Ward Richardson "takin' notes" of his opinions on things in general, which he has printed for the edification of the readers of that educational periodical. The eminent physician fought all his scientific battles o'er again, and confided to his appreciative listener many interesting details as to his professional career. With these we have no concern at present. On one point, however, as to which the interviewer was particularly eager to hear the deliverance of the oracle, the reader will doubtless to some extent share his curiosity. Sir Benjamin gave it as his "fixed opinion that every man, and every woman for that matter, should attain the age of one hundred." He proceeded to show how this was to be done. First of all, as we gather, the would-be centenarian must have "light hazel eyes, light brown hair, complexion inclined to be florid, lips and eyelids of a good natural red—never pale, and rarely of a bluish tint." Then he must never smoke and never drink—the prohibition is absolute, but we presume the restriction applies only to alcoholic liquors; further, he should eat very little meat. He should work as little as possible by artificial light; in fact, one of Sir Benjamin's most widely quoted sayings, we are told, is: "Make the sun your fellow workman." If, by the way, this rule is strictly adhered to in this country, few people are likely to die of overwork. What the color of the eye may have to do with longevity does not seem to have been revealed to the interviewer. An American authority professes to be able to diagnose a predisposition to centenarianism by the length and breadth of the head; he says nothing as to its thickness, which yet may help to make a man's days long in the land. As to the rigid abstinence

from tobacco and alcohol enjoined by Sir Benjamin Ward Richardson on all candidates for the long-distance race of life, it has almost as slight a basis of fact as the importance he attaches to the color of the eyes. Immoderate drinking of whisky, like immoderate drinking of tea, or for that matter immoderate eating of bread, will shorten life; but what evidence is available on the subject seems to show that a strictly temperate use of alcohol tends to prolong life; for the excellent reason that it assists digestion and thereby promotes health. The most trustworthy statistics on this subject are those of Sir George Humphry. Of forty-five cases of centenarians collected by him only twelve were total abstainers, while thirty were moderate drinkers, and three were heavy drinkers. Of 689 persons between eighty and one hundred years of age in Sir George Humphry's tables only a fraction over 12 percent were abstainers, while nearly 9 percent were heavy drinkers. The abstainers would appear from these figures to have only a slight advantage in point of longevity over the non-abstainers. The real secret of centenarianism is well expressed by Sir George Humphry when he says: "The prime requisite is the faculty of age in the blood by inheritance." In other words, if you wish to live a hundred years you must, as Oliver Wendell Holmes said of another matter, begin by going back two or three hundred years, and securing for yourself a sound and long-lived ancestry.—*British Med. Journal*

The above selection contains some thoughts that are worthy of consideration. The subject of general hygiene that underlies the suggestion, is one with which all ought to be more familiar—is one to which, in a practical way, the attention of the medical profession should be more specially given, from the highest medical college in the country, all the way to the most modest, unassuming country practitioner.

In the above are some rather peculiar statements, for instance: "The would-be centenarian must have light hazel eyes; light brown hair; complexion inclined to be florid; lips and eyelids of a good natural red, never pale, and rarely of a bluish tint."

These conditions are of no special importance, except so far as their presence may indicate a good texture of the organs and

tissues of the body so well wrought up and woven together that they will be able to maintain their integrity for a relatively great period of time.

The complexion inclined to be florid, lips and eye lids of a good natural red indicate excellent tissue of the skin of the analogous structures as well as a good circulation. In order that the well-organized body may attain the greatest age, it is important that it shall have those conditions and supplies that are in the best degree tributary to its maintenance and that it shall be free from all those things and conditions that would, in any degree, be injurious to it. In this article some habits are referred to and apologized for, that certainly ought not to be encouraged; certain statistics are presented to show that abstinence from tobacco and alcohol does not promote longevity, and even the statistics of Sir Geo. Humphry, here referred to, fail to prove their non-injurious character. Every effort hitherto made to demonstrate that the use of tobacco and alcohol are beneficial to the animal economy have been significant failures, while the observation and too frequent experience of multitudes of people is that the use of these two articles have wrought more injury to the human race than the use of any other two materials with which we have to do—have wrought more ruin and misery than war, pestilence and famine.

It is a surprise that a journal, with the broad and full knowledge of everything that pertains to our physical well-being, should permit such an apology for two great evils to appear on its pages. —[ED. REGISTER.]

Surgery Without Pain.

The meeting of the Philadelphia County Medical Society was rendered particularly interesting on account of the presentation of a paper by Dr. T. Pervin on the new method of abolishing the pain of surgical operations without the necessity of employing ether or chloroform. This is the system suggested and practiced

by the well-known German surgeon, Schleich, who, by its use, has been able to perform practically all the minor and many of the major operations of surgery without the slightest pain to the patient and without depriving him in any other way of his consciousness.

By the method of Schleich there are prepared three solutions of common salt, in which are dissolved different quantities of muriate of cocaine and morphia. The part to be operated upon is thoroughly cleansed with an antiseptic solution and the surface brought to a low temperature by a spray of chloride of ethyl. Into this area of the skin, which, by the action of the spray, has been deprived of all sensation, the salt solution containing the cocaine and morphia is injected by means of a special hypodermic syringe, numerous punctures being made in all directions. This renders the deeper structures insensible to the surgeon's knife, and for a period of from twenty minutes to half an hour the patient is not conscious, so far as actual pain is concerned, of extensive cutting and sewing.

The new method differs in an important degree from the ordinary employment of hypodermic injections of cocaine. The strength of the drug which has been used in the past is about one part in each twenty-five parts of the solution, while in the Schleich method there is often employed a strength of only one in 10,000. In the former, however, only a few drops of the solution are employed, while in the latter the tissues surrounding the part to be operated upon are thoroughly infiltrated with the solution. With the small quantity of the cocaine employed by Dr. Schleich, it is apparent that something more than cocaine is responsible for the local anæsthesia so perfectly obtained. In the opinion of Drs. Keen, Ashhurst and Morton, who discussed the merits of the new system, the infiltration of the tissues with the solution and the distention nerves were responsible in a large measure for the absence of pain when the incision by the knife is made.

To indicate the manner of employing the method of Schleich, and to show the entire absence of pain, one of the surgeons had the solution inserted beneath the skin of the arm and an incision an inch long made and sewed up before the society last evening.

In the discussion it was generally conceded, both from the results achieved by the German surgeon and the experiments made in a number of cases in this city, that a decided advance has been made in the field of anæsthetics and that for a large number of operations the infiltration method would entirely supersede the general anæsthesia by ether and chloroform.—*Philadelphia Record*.

The Use and Abuse of the Brain.

In the course of an address on this subject, Dr. Wm. A. Hammond recently said: "Anxiety causes more brain disorders than any other agency I know of, unless it be love. Many jokes are made about the gray matter of the brain, but I will say right here that I have a great respect for the gray matter of the brain. There is no higher organism than that. It is the grandest organ in man, and were I ever to worship anything, it would be a portion of the gray matter of the brain. It is well for us to know that the emotions cause more unhappiness and crime than any other function of the brain. Human beings are governed by their emotions, and it is well that they should be, though it is the emotions that wear away the brain, and not honest, intellectual work. Very few people suffer from intellectual work, and if my memory serves me I do not recollect ever having a mathematician for a patient. It is not intellectual work that causes nervous dyspepsia, but the emotions, such as anxiety, fear, sorrow, and love. I consider that eight hours are sufficient for a man to use his brain, because if he exceeds that time he becomes nervous and fretful, and an exhaustive brain is an irritable brain. You may not feel the evil effects of the stress of brain work at the time, but you will sooner or later, when it is too late. The men that work at night with their brains are the ones that expose themselves to danger and death, which will surely come unless the great strain on the mind is lightened."

Washington City Dental Society.

At the twenty-ninth annual banquet of the Washington City Dental Society, held December 19th, at the Cochran, Dr. A. W. Sweeney read the annual address and Dr. L. C. F. Hugo officiated as toastmaster, while the following responded to toasts: Dr. Wm. M. Hunt, Dr. H. B. Noble, Dr. H. C. Thompson, Dr. Wm. S. Donnelly, Dr. G. L. Hills, Dr. M. F. Finley, Dr. A. W. Sweeney, J. Roland Walton and C. H. Lyme. Officers for the ensuing year were elected as follows: Dr. William M. Hunt, President; Dr. D. E. Wiber, Vice-President; Dr. W. N. Cogan, Secretary; Dr. M. F. Finley, Treasurer; Dr. N. H. B. Noble, Librarian, and Dr. Garnett L. Hills, Essayist.

Early Rising and Insanity.

The great poets of the world have always sung in praise of sleep:

“—— sore labor’s bath,

Balm of hurt minds.”

They have always consistently opposed the habit of early rising, except in so far as they have depicted (writing by the light of the lamp) the glories of the morning and the suggestive promises of a beautiful sunrise. The scriptures are also on the side of prolonging slumber:

“Yet a little sleep, a little slumber, a little folding of the hands to sleep,” says Solomon.

But the habits of modern civilization and the traditions of family life have been steadily set against these poetical and scriptural ideals. In whatever else men differ, or in whatever other way they err, it is agreed that the habit of early rising is seemingly, advantageous and necessary.

The statement, therefore, by a prominent alienist and superintendent of a large insane asylum, that early rising promotes insanity comes with a terrible shock upon the serenity of established beliefs and long-cherished customs. Dr. Selden H. Tal-

cott, of Middletown, N. Y., however, supplements this statement of his by arguments of no mean weight. He calls attention to the relative frequency with which farmers, their wives, daughters and sons become insane. The cause of this has heretofore been thought to be their isolated lives, their hard work, and, perhaps, the excessive use of pie and potatoes; yet these have never seemed quite adequate explanations, when one considers the fact that the farmer has constantly fresh air, abundant exercise, no undue excitement or mental strain, and relatively little alcoholism and syphilis. So that Dr. Talcott's view is, at least, a helpful one in the way of explaining the psychopathic tendencies of the ordinary agriculturist. He states that the excessive early hours of rising, which are customary among the farmers, and which hours are imposed upon their sons and daughters and wives, prevent a sufficient amount of rest. Growing children, he thinks, in particular suffer from "the artificial cut-off" which is applied so rigidly to their lives.

The suggestion of Dr. Talcott is valuable from another point of view, because the particular cause of insanity to which he refers is one that can be so easily and comfortably combated. It is not like the enforced abstinence from alcohol, and tea, and tobacco, high thinking, and all the other ordinary comforts or luxuries of civilization. The diminution of insanity by staying in bed later mornings is a task to which all will address themselves with pleasure, and we believe that every farmer's boy will have a sense of particular kindness toward the physician who has discovered this new method for preventing possible mental disorders. We might readjust the well-known lines of Sir William Jones, for the benefit of the farmer, somewhat as follows:

"Eight hours to sleep, to soothing pleasures seven,
Nine to the farm allot, and all to heaven."

—*Medical Record.*

EDITORIAL.

Ohio State Dental Law.

A bill is now pending in the Legislature, the object of which is to amend or so change the present dental law as to make it more efficient. In the present law there are some deficiencies that render it almost valueless; at least, so far as it has been administered, it falls short of accomplishing the object for which it was enacted. In the new bill these deficiencies have been remedied, and certain very desirable features have been added.

The present bill is one that ought certainly, and we have no doubt will, command the respect and hearty support of every truly professional dentist in the State, and we see no good reason why it should not receive the hearty support of every well-wisher of our profession in the State.

There are some who are practicing in open violation of the law; these, of course, will oppose the passage of the bill. There are some, though I hope not a great many, who are so grossly ignorant that could not pass a reasonable examination before an examining board; these, of course, will oppose the passage of this bill. There are a few others who will oppose the bill from purely selfish motives—considerations that affect themselves and nobody else.

These are the oppositions that are to be met with by the friends of the bill, and it is to be hoped that the united effort of the better part of the profession in the State will be promptly put forth for the success of the measure.

The Medical Law.

A law regulating the practice of medicine in Ohio has just been enacted by our State Legislature. Two years ago a bill embracing substantially the same provisions as the present law was presented to the Legislature and met with ignominious defeat in both houses. It met with such treatment at the hands of the

Legislature as to arouse the indignant protest of almost every honorable medical professional man in the State, and this resulted in a great degree, by the efforts of physicians, in such a change in the personnel of the Legislature as to attain the end recently achieved.

It was enacted by well-nigh the unanimous vote of both houses, which is a severe rebuke to that body of two years ago, at whose hands the same bill received such shameful treatment.

This law is a most excellent one, in all its provisions, and will have a good influence in freeing the State from that overwhelming mass of quackery and charlatanism that have so long run a rampant course throughout the State. .

It will be a matter of interest to the dentists of the State to note the means that shall be employed for the efficient execution of this law. We may thereby learn a lesson. The results of this medical law will be watched with great interest, not only by the medical profession, but by the specialist of that profession, and by every philanthropist and well-wisher of his kind throughout the State. It will only call forth regret and sorrow from those who have been bringing discredit upon a noble profession, robbing the people of their money, and tampering in a most reprehensible way with the health and welfare of the public and bringing a noble profession into disgrace.

Obituary.

DIED, September 23, 1895, in Toledo, Ohio, Dr. Harvey Scott, of Lancaster, Ohio.

Dr. Scott was born at Old Town, Green Co., Ohio, January 30, 1809. Until his seventeenth year he was with his father who was a farmer, and endured the hardships, privation, and struggle, of the frontier life. His early education was received in a log school-house of the pioneer age. In 1826 he left his father's house and made his home with a family in South Charleston, Clark Co., Ohio, where he had further educational advantages, selecting a light manufacturer's trade. In 1833 he began the

study of the medical profession, and in 1836 began its practice. Two years later he changed his profession to dentistry and in April, 1839, located in Lancaster, Ohio, where he resided until 1891, when he went to Toledo, Ohio, to live with his daughter, Mrs. Charles Hutchinson.

In November, 1830, he was married to Lydia Ann Melton, who died June, 1841. In April he was again married to Priscilla Ann Crook, of Lancaster, who was the mother of his children; her death occurred July, 1873. In 1875 he married his third wife. His family consisted of six children. Dr. Scott, especially in middle life, was quite inclined to literary pursuits. For ten years, from 1859, he was the editor of a paper in Lancaster.

In 1876 he wrote the history of Fairfield Co., which was regarded up to the present as containing the most complete and accurate data in regard to county affairs that is obtainable. He was a close student of human nature; was affable and a friend of all, and he enjoyed the esteem and confidence of all his acquaintances.

Considering his advanced age, 86 years, he enjoyed very good health. About eight months before his death a breaking down of the general system made its appearance, and though he had wonderful vitality, the malady made slow progress, until life peacefully passed away and an honorable life was ended.

Dr. Scott was one of the pioneer dentists of Ohio, and well did he maintain the status and dignity of the profession, and though he did not add very largely to its literature, owing to his being occupied in other directions, he never did aught that reflected anything but honor upon his chosen profession. His life was one well worthy of emulation.

DR. W. H. DWINELLE.

Died in Cazenovia, N. Y., February 13, 1896, Dr. W. H. Dwinelle, in the 75th year of his age. For the past four or five years Dr. Dwinelle's health had been failing. He was all his lifetime a very hard worker, both physically and mentally, and doubtless to this strain is due in a large measure the break-down

of his nervous system, which he with a great effort resisted for two or three years. His system finally gave away, however, and for the past three years he had been unfit for any work, either physical or mental.

Dr. Dwinelle has been a prominent worker in the profession for over fifty years, and for thirty years or more was a man of great influence. He did much in behalf of the profession in its early days, and was a great force during the time of the transition in the profession by which it passed from a mere trade to a profession.

His aspirations were always for the highest professional attainments, and he labored to that end, not only for himself, but his efforts were always manifested by his practice, his pen and in discussion for the elevation of his fellow-practitioners to the highest point of excellence. He was cotemporary and a co-worker with that band of noble men to whom dentistry owes so much, mainly Dr. Chapin A. Harris, Robert Arthur, Elisha Townsend, Solyman Brown, Eleazer Parmley, Elisha Baker, Joshua Tucker, Edward Harwood, J. F. Flagg, J. D. White, and a large number of others, all of whom did grand pioneer work in the days of seed-sowing.

Dr. Dwinelle was a man of large mental caliber, of commanding presence, affable and genial in his intercourse with professional brethren, and always ready to communicate whatever he had that would be of value to others. He had a thorough knowledge of general medicine, and always made that subservient to his chosen department. He served his day and generation well. But few in the profession of to-day knew Dr. Dwinelle personally, but the memory of what he did should everywhere be kept fresh in mind, and the example he set in professional work should be observed by all.

S. R. BINGHAM.

Died February 1st, at his home in Highland Park, Ills., S. R. Bingham, Manager of the Chicago Branch of the S. S. White Dental Manufacturing Co. The death of Mr. Bingham was a

great surprise, for he had usually possessed excellent health and vigor, and had a most excellent constitution. About ten days before his death he contracted a very severe cold, which continued without any special variation for a few days, when pneumonia set in, about forty-eight hours before his death. This ran a rapid course, unchecked by any effort that was made or seemed possible to make, until death came off victor. Mr. Bingham was a man of most excellent character; widely, and it may be said almost universally, known to dentists and dental dealers in this country, and indeed, his name was known abroad. Wherever and by whomsoever he was known, he was appreciated and beloved for his grand, manly qualities, his pure and unselfish life, and his noble example of true, consistent manhood. In this great loss there is much gratification in the thought of his noble life, which is worthy of emulation by all, especially by those in early life.

In evidence of the correct and thorough business ability of Mr. Bingham, it is only necessary to state the fact that he was with the house of S. S. White Manufacturing Co. for thirty-eight years, nearly the whole of this time occupying a very responsible position; and so perfectly were the duties of that position discharged and so satisfactorily to the heads of the house that, so far as is known, never a word was uttered adverse to his business ability and rectitude. His life stands before us all as a pattern worthy of imitation.

His family will have the warmest sympathy, not only of the entire dental profession, but of all who knew Mr. Bingham. Surely his memory will be kept green by those who knew him.

Mississippi Valley Dental Association.

The fifty-first annual meeting of the Mississippi Valley Dental Association will be held in the Ohio Dental College Building cor. Court and Central Ave., Cincinnati, April 15 and 16, 1896,

W. V. B. AMES, *President, Chicago.*

DR. J. R. CALLAHAN,

Chmn. Ex. Com., Cincinnati.

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COMMUNICATIONS.

The Destruction of Children's Teeth—Cause and Prevention.

Read by title in the Section on Dental and Oral Surgery at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY J. G. HENISTER, M.D., BALTIMORE, MD.

The destruction of children's teeth is to me, as it must be to all of you, a source of the greatest regret, and ordinary methods have failed to overcome the difficulty. It would be useless for me to attempt to go into details as to the cause of this condition, as it must be perfectly apparent to all who stop to consider a moment. I think the first and the greatest cause is neglect and ignorance as to the proper time and means of caring for the teeth. I tell you, gentlemen, it is astonishing to see the ignorance of some parents in regard to the teeth of their children. They will come into your office with a child and point to a six-year molar with the crown nearly destroyed, and say: "Doctor, I wish you would extract this little snag." You will answer, "That is a permanent tooth and should be preserved." They reply, "Oh no, that is only one of the baby teeth." You insist that it is a permanent tooth and refuse to extract it, and they leave your office with a look of great incredulity, go to some one else who will extract it, and you will probably never see them again. This ignorance is not confined to a few of the poor, who are unable to procure the services of a dentist, but extends to others who have plenty of

time and means, but who never think of their children's teeth until they are crying with the pains of toothache. There is still another class of parents, who do all that they think necessary by insisting upon the use of the tooth-brush and dentifrices, but never think of consulting a dentist so long as the child does not complain. They make a mistake, common to a great many, that the incisors are the first permanent teeth, and thus utterly neglect the six-year molar, thereby leaving it for a year or two exposed to the inroads of caries, without any protection whatever.

Another important cause of this decay is in the use of improper foods; by double bolting in the craze for white flour and bread, the phosphates or bone-making properties are taken away, and, as a consequence, the teeth of children are imperfectly developed. I suggest to my patients the use of corn bread and graham bread, and I also prescribe the "Syrup of Hypophosphites" to endeavor to check and restore the loss of the lime salts of the teeth.

I have tried to enumerate a few of the causes of the loss of the teeth of children; I now come to the methods of saving them and to the responsibility of dentists and physicians alike. I have spoken to physicians about the matter, and they nearly all disclaim any responsibility, saying: "The teeth are not in our line, that is your work." This is a serious mistake. No physician who has the welfare of his patients at heart can afford to neglect the teeth, for in the mouth begins the process of digestion, and if the food is not properly masticated, it goes into the stomach in lumps, and gives the digestive organs there so much work that they become impaired and unable to properly perform their functions. We have been called a "nation of dyspeptics" and the cause has been attributed to the rush and hurry of American life, in eating too much and too rapidly, but I do not think this is the entire cause. The teeth being imperfect, imperfect mastication is the result, which is an important factor in this distressing complaint. The physician says, "What can I do? You would not have me fill the teeth?" No, that is entirely unnecessary and out of his line, but he can, at least, examine the teeth of children, and insist upon the parents taking them to some careful dentist.

This is not a mere suggestion; it is his duty, a sacred obligation. If the nose, eye or ear is affected, does he not examine it and insist upon the parent taking the child to a specialist? Do you not think that the teeth are of sufficient importance to warrant equal care? I think so, and say that the health of future generations will, in a great measure, depend upon the preservation of the teeth now. It has been predicted that the "coming man" will be toothless and hairless, and if things continue as they have been doing, this will probably be so. It has been demonstrated by scientists that deformities and malformations can be transmitted from parent to offspring. If it is so with other parts of the body, why not with the teeth? Jaws are sometimes entirely stripped of teeth, and when some teeth do remain they are only vestiges of what they should be. This I think is a deformity that can be transmitted.

I have observed on several occasions that peculiarities of the mouths of parents were inherited by children; for instance, I saw a mother who never had a left superior lateral incisor. One of her sons, in fact, the only one of her children I ever saw, had the same peculiarity. So I might go on giving examples of what will probably happen if we do not save the teeth of the children. You all know that the field of action of the dentist is, in a manner, circumscribed. He can not regularly go to the home of his patients to examine their teeth, but must wait until they come to him. Now here is where the physician should do his part. He usually has the care of the child from its very infancy, and if he would occasionally make a careful examination of the teeth of his little patients, and send them to the dentist, the small cavities of decay could be filled with some simple material, and the teeth thus preserved indefinitely. A short time ago a physician, whom I know, insisted that a mother should take her little girl to a dentist, saying the six-year molars were decayed and required filling. She was brought to me and I found that the teeth were badly decayed, and so sensitive that I had great difficulty in persuading the child to allow me to do anything to them. She was eleven years of age; if this physician had examined her mouth regularly, and insisted upon her going to a dentist the caries

could not have made much progress. Dr. Bonwill, the eminent Philadelphia dentist, has said that the only way he has ever been able to do anything with the six-year molar was to fill every tiny spot of decay. So once again I beg of physicians to watch the mouths of the children and send them to a dentist.

Now, gentlemen of the dental profession, what is our duty? In the first place, we must endeavor to educate our patients. How can it be done? I have seen little treatises upon the care of the teeth, written from time to time by dentists and others, who have given this matter some attention, but as a rule they were too scientific for the average lay reader. What is needed, and what I would suggest, is the publication, under the auspices of the American Medical Association, or the National Association of Dental Faculties, of a small tract or leaflet, written in plain, simple language, so that any one can understand it, describing the order of the eruption of the permanent teeth, and the proper means of caring for them, and warning parents of the necessity of preserving the temporary teeth until the permanent teeth appear. These little papers could be given our patients, and I think, in this manner, great good could be accomplished. Another method that has occurred to me, is the preparation of short articles upon the care of the teeth, written in such a manner as to interest, and at the same time instruct, the children as to the necessity of taking care of their teeth, these articles to be published in juvenile papers, such as *St. Nicholas*, *Chatterbox*, *Golden Days*, etc. This is only an idea of mine, and may not be practicable. Everything is to be published with the sanction of some recognized medical or dental society, thus removing from it every semblance of quackery or advertising.

Now, gentlemen, I have presented these few ideas of mine. I have attempted nothing scientific, and have given no new and startling theories, but have endeavored to express myself in plain, simple language; and I would ask you not to hesitate in criticism of me and my suggestions, for my object has been to provoke discussion, thereby bringing out the views of those present upon the subject. I thank you for your kind attention, and will say, in conclusion, if this paper is the means of saving only a few of the teeth now annually lost, I will be very happy.

Common Ground of Medicine and Dentistry.

Read in the Section on Dental and Oral Surgery, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY JOSEPH ROACH, M.D., BALTIMORE, MD.

At the outstart, definitions are necessary, and it is well to state that the term medicine includes all that the average practitioner would expect to do, who did not think of establishing himself in any one of the numberless so-called specialties of medicine. For convenience, I will call dentistry one of these specialties, although it might be shown that it is so distinct and so peculiar as to make it well-nigh a thing by itself and difficult to place with any of the specialties. If it be surgery, many operations consist in cutting out decayed parts in an organ so constituted that it has of itself no power to make use of the *vis medicatrix naturæ*, found in other organs and tissues, and with filling the same with some foreign material. The sole use of that material is to prevent further progress of the disease and to serve as a substitute for grinding and cutting food.

There is no blood, no ligation of arteries, no stitches, no sutures are made; and the patient is dismissed on the spot cured by a surgery, of which it might be said that its only relapses are due either to mechanical imperfections in the operations or to inherent faults in the structure repaired. True it is, that one department of this work trenches on surgery thus far; that in the exploration of the canals, occupying the roots of teeth, either by a failure to remove living tissue or a failure to disinfect any decomposed tissue, a local sepsis may occur, resulting in abscess and occasionally invoking grave consequences. But even this does not ordinarily rise higher in the scale of surgery than the treatment of a felon on the finger. I have thus purposely taken a low view of the daily work of dentistry for this reason. I think possibly too much pains have been taken by its membership to elevate a most useful, nay, a most indispensable calling, into a position to vie with surgery proper. I say daily work, for

while it is true, that, as dentists, we are occasionally called upon to repair a fractured maxilla or even extirpate a tumor of the jaw, such operations are but occasional and in the nature of the case, it seems to me to fall as naturally into the domain of the general surgeon, as does the fracture of the femur. The true usefulness of the dental surgeon in such cases rests in his ability as mechanic to skillfully form and adjust special splints in case of fracture. This ability he forms from his daily work noticing artificial dentures or in his possessing special cutting instruments in the form of burs, etc., for the dental engine, instruments peculiarly adapted for his own work in removing decay from teeth and turned to occasional use as above in removing tumors. Still none the less skillful is the work of making plates, crowns, bridges, etc., where to the dexterity of the mechanic must be added the fine eye of the artist, restoring sunken features, harmonizing incongruities and above all and most perplexing of all, pleasing or failing to please the tastes of fading humanity.

But while all the above may be true, and the work of the average dental surgeon may be largely mechanical, the fact, that both the surgeon and the work on the human body, makes a bond of union between them which is worth study, inasmuch as whatever links in this bond are found to be the common property of both are of much greater interest than any dissimilar points.

Of the maladies of common interest I will mention those often obscure and occasionally grave diseases that involve the maxillary sinus. This is obvious, for the reason that in such cases the dental surgeon very often is apt to be the first observer on the ground. For whether we view these diseases as arising from diseased teeth or from some more remote and obscure cause, the dental surgeon, if he be ready to take up such cases for himself or turn them over to the surgeon, is none the less called on to diagnose accurately the symptoms, that they may be treated as purely from tooth-trouble or he may proceed on some other line. It is not in the province of this paper fully to describe all the various troubles that may arise in the maxillary sinus; but, if you will throw with me a rapid glance at its position and uses,

it will be of service in following any line of treatment that may be suggested. It is situated above the so-called jaw teeth on either side of the upper jaw and extending from the first bicuspid (sometimes the cuspid) backward to the second molar of the same. Its size varies and its exterior or facial walls are quite thin, the palatal wall stronger and its floor very variable in shape and thickness. The only opening into it upward is into the nasal cavity. The situation of the cavity is surgically important, for when we consider the tendency of all mucous-membrane-covered surfaces to catarrhal troubles and the position of any cavity without natural drain, shut in by bony walls, and its only outlet narrow and pointing upward, we see at a glance how the difficulty or impossibility of any natural drainage and the tendency of fluids once accumulated could give even more trouble than does occur. Indeed, if we consider the tendency of catarrhal troubles to spread by continuity of surface, it seems a wonder that all cases of chronic nasal catarrh do not involve engorgement of the antrum itself. Certainly this is what one might expect. Yet it would seem that this is not only not true, but that, on the other hand, certainly from the partial view of the case taken by the dental surgeon, the lighting up of antral trouble can be traced often to diseases of the teeth, the roots of which lie under its floor.

The dissecting table reveals to the dental pathologist a curious state of affairs just here; but, in order to grasp this situation fully, it is necessary to state what comes much more closely under the observation of the dental surgeon, a fact that only the physiognomist studies as it should be, and that is, that in inheriting our tendencies, we inherit a mixture. Small jaws with large teeth are the rule, occasionally large jaws with small teeth; the back teeth of the father, the front teeth of the mother or vice versa. The jaws are sometimes so narrow and cramped and the teeth so large, that they crowd each other and such a lack of blood in the jaw, from non-use in mastication, makes bone and muscle without stamina. The result is that the large teeth of the upper maxilla, the roots being formed physiologically, by addition to their length are either forced through the floor of

the antrum, or else, in the evolution of that chamber from six years to twenty-one, the periosteum fails to build thickly enough to cover those roots.

They are, however, always covered by the membranous lining of this cavity, else the vessels, passing into the foramina of these teeth, would be exposed to the atmosphere. All this is not likely to involve the antrum in pathologic trouble so long as the roots of these teeth are sound, but it may be fairly stated that more than one-half of the patients falling into the dentist's hands, sooner or later have pulpless molars, the roots of which project through the floor of the maxillary sinus and are objects more or less irritating to the tissues against which they rest. Again in the case of molars, the roots of which do not pass through the antral floor, in the case of devitalization, an ordinary alveolar abscess may occur with the sequelæ of absorption of the alveolar plate at the tip of the root and the outflowing of pus into the antrum itself. It is true that an abscess in such situation might not be of grave consequences, yet it is plainly a situation of risk. This may not often exist, for the reason that the widely-forked roots of the upper molars and their nearness to the outer walls of bone cause development of fistulous openings away from the antrum, yet it is a source of danger and as such should be studied. Dentists devitalize and remove the pulp from the roots of such teeth. This is a very usual, almost daily, operation. But while an earnest and faithful effort is made to perform this operation thoroughly, so attenuated are the canals of the molars, that is not at all certain that all the pulp is removed. In such a case it is easy to see that any filling material forced into the root canal may force particles of dead tissue through the foramen and into the tissues above, inoculating these with septic matter; or, if disinfectants have been used there, such as carbolic acid, corrosive sublimate, etc., may be forced through to the injury of a tissue which has, as described in the outset, no drainage in case of chronic irritation. I have said enough on this subject, I dare say, to call your attention to certain lesions of the antrum, that are common ground of observation and treatment of both dentist and surgeon, and call attention in conclusion to a case, sometimes

very grave, always painful, that of an impacted and abscessed third lower molar.

The same causes to which I have already alluded, as dwarfing the upper jaw, conjoin to make the lower both small and short. In the evolution of the lower wisdom tooth, it seems less often to share in the dwarfing process than the corresponding upper tooth. In a word, it is often too large for the space between the second molar and the angle of the jaw. In consequence its eruption is so interfered with, that it may be either only partially erupted or it may be impacted at an angle against the second molar, appearing through the gum slightly or not at all. Abscess of this tooth often involves not only the tissues immediately around it, but the tissues of the throat become inflamed and grave results ensue. It is pretty well established that throat trouble of a serious, or even fatal character, has been set up by an agency seemingly so unimportant. Abscess, opening into the pharynx, is certainly one of the sequelæ of this trouble. I have been told of cases, where the infiltration of pus between the muscles of the neck and connective tissue proceeded to the formation of fistulous openings on the stomach with ordinary results of blood poisoning.

I have said enough to indicate a common ground for dentistry and surgery in the two cases above cited. Many more might be mentioned, if time permitted, to strengthen the statement thereof.

New Treatment for Pyorrhœa Alveolaris.

In presenting a treatment for Pyorrhœa Alveolaris I will not attempt to give a scientific basis for my method, since it was conceived of observation rather than of profound scientific research.

Several months ago I had occasion to see a mouth in which I had placed a piece of bridge-work three months prior. The bridge consisted of two gold caps on the lower cuspid teeth, sustaining the central and lateral incisors which, as a result of pyorrhea alveolaris, had been lost. The cuspids to which the crowns were

attached, as well as the approximal bicuspid, were also badly affected; so much so, in fact, that at the time I was apprehensive of the result. To my astonishment, three months after the operation, I found that the cuspid teeth had regained much of their firmness and an entire cessation of secretions. The bicuspid were still in the same condition as when the work was done. This caused me to suspect that the presence of the metal, which was driven well under the free margins of the gum and made of 20-karat gold, alloyed with silver only, might account for the cure. I at once placed gold bands around the necks of the bicuspid teeth, cementing them firmly in place to prevent riding. In an incredibly short time about these teeth, too, the flow of pus stopped. I have tried this method in three cases since with uniform by good results. In the most recent case, instead of using the gold bands, I used pure silver. This idea was suggested recently at the Johns Hopkins University, where experiments were made on silver disks by pouring pus cultures on glass slabs; where the cultures came in contact with the silver they at once became innocuous. This silver-band experiment proved by far the most valuable. In the short time of five days there was an entire abatement of the secretions. This led me to believe that it was the silver contained in the gold crown of my first experiments that did the work. The experiments at the Johns Hopkins University shows silver to be the best agent of all the metals to destroy pus cultures.

The method of adjusting the bands is much the same as making a gold crown—fitting snugly to the tooth and cementing firmly. None of the metal need be exposed to view, since the only object is to have it in contact with the diseased tissue. I have not removed the bands in any of the cases, and therefore cannot state if there will be a recurrence of the trouble. I am of opinion, however, that if all the teeth affected were treated in this manner, and the disease entirely eradicated from the mouth, there would be no recurrence. Should this not prove true the bands left on the teeth permanently would certainly be an improvement on pyorrhœa alveolaris. More anon.

C. H. ROSENTHAL, D.D.S.

SELECTIONS.

The Turkish Bath.

BY LOUIS LEWIS, M.D., PHILADELPHIA.

Whoever indulges in a Turkish bath for the first time will be astounded at the vast amount of dead tissues and used-up bodily products that are expressed from his skin by the combined action of the hot air and massage. Countless rolls of effete material, that cannot be removed through the medium of ordinary perspiration, make their exit through the surface, by channels that were previously blocked and impervious. Simple perspiration—the first effect of the hot-air bath—acts on the smaller sweat-glands, and sets free the water, carbonic acid, and more or less nitrogen; but the larger sweat-glands, which are situated in the fatty tissues beneath the true skin, and contain the solid constituents lactates acetates, lime-salts, chloride of sodium, besides various extraneous matters present under unhealthy conditions, are only acted on by the addition of scientific hand-kneading. The retention of these extraneous matters, urea, uric acid, acetone, bile-products, etc., leads to toxemic headaches, erythematous swellings, rheumatism, gout and jaundice. Another system of glands, the sebaceous or oil-glands, are also apt to become blocked, and their imprisoned tallowy contents—olein, stearin, palmitin—give rise to unsightly varieties of acne on the face, chest and shoulders. But these glands are nearer the surface than the sweat-glands, and thus are more readily relieved of their contents. The sweat-glands also contain some fatty matter, similar to, but not identical with, the contents of the sebaceous glands. The exit of sweat results partly from increased blood-supply, but more from reflex action in the sweat-centers, kindled through the medium of the nerve fibres.

No sensible person can doubt the expediency of ousting all these intruders from the system by a method so agreeable and effectual as the Turkish bath. Then comes a sensation of relief from some indefinable general obstruction, as though one were

actually breathing through every portion of the body, and a feeling of buoyancy only comparable to "walking on air." A little muscular languor may remain, which, however, is not fatigue, yet invites one to indolent repose on a couch provided for the purpose; and after a short dreamy period, devoted to "thinking of nothing at all" (like the jolly young waterman), one rises as a "giant refreshed."

Numerous minor ailments and functional disorders are removed or ameliorated by the Turkish bath. The expectoration, hoarseness and oppression of breathing, attendant on "taking cold," are speedily relieved, also the lassitude and aching of limbs. In febrile conditions, it is necessary to restore the balance between oxidation and nutrition, or, in other words, between the production of heat and its consumption; here the bath affords a rational remedy, by reducing and regulating the temperature. Heat is a source of motion in the animal body, and must not be unnecessarily wasted. Residents of cities, who lead sedentary lives, and take insufficient exercise in proportion to a free mode of living, are liable to a general plethoric condition, marked by a coated tongue, florid face, suffused eyes and bounding pulse; or the blood itself may be tainted with retained excrementitious material, as signalized by a moist tongue, pallid face, sallow skin and depraved secretions. A regular use of the Turkish bath will go far to control the blood-supply, and, by removing the offending matter, restore the various organs to their normal state. The bath is very useful in neurasthenia, with a dry tongue, wayward appetite, disordered vision, tinnitus aurium, and headache; and in vertigo, even when the dizziness affects the gait and causes a dread of walking alone. The bath tranquilizes the vital condition of all the nervous centers. Many persons are worried by morbid "thick-coming fancies" that trouble the brain, and weigh upon the heart; these are commonly called "a fit of the blues" or "the vapors," and they are quickly exorcised by the Turkish bath. Chronic sleeplessness, whether due to rheumatic, gouty or dyspeptic disorders, yields to a course of baths, through the depurative effect of free transpiration and the functional activity that is awakened by the massage. Headaches of nervous and

congestive origin, and those due to the toxemic influence of urea, bile, alcohol and malaria, succumb to this agent, when timely employed. Spinal irritation, rheumatism, lumbago and sciatica, asthma, chronic bronchitis and winter cough, irregular work of the kidneys and liver, are all alleviated by hot air and massage. Eczema, psoriasis, urticaria, prurigo and other skin diseases are benefited; but for obvious reasons these are unsuited for treatment in public establishments. In fine, in any of the other conditions alluded to and in many functional disturbances outside of organic change, I would say to the patient, without discrimination, seriously and literally, "Go to bath," and let it be a Turkish one.—*The Times and Register*.

A Long-lived Family.

A family named Hindale is reported from Mount Holly, N. T., consisting of eight members. The oldest is ninety-one years of age, and the youngest seventy-two. Their average is eighty-two years. The most remarkable feature about this family is that they are children of consumptives. The father died of that disease at forty-eight, and the mother at fifty-two. No trace of the disease is discoverable in the children.

Once this would have been inexplicable, but we now know consumption as a contagion may be communicated to those having no predisposition. This is probably the true explanation, or else on the principle of atavism, the children have inherited the constitution of a more remote ancestor.—*Insurance Monitor*.

Classification of Diseases.

Among the particularly notable changes, differing from previous reports, is a new system of classification of diseases. It is remarked that until recently the classification of diseases and injuries pursued was based on that of the College of Physicians of England, now deemed by the Surgeon-General to be inconsistent in many respects with our present knowledge of the causation

and processes of disease. He has therefore constructed a new system, in which the causes of disability are aggregated into five principal classes : (1) infectious diseases, general and local ; (2) diseases of nutrition, general ; (3) structural and functional diseases of organs ; (4) accidents and injuries ; (5) unclassified. Many of the diseases now classed as diseases of particular organs are placed among the infectious diseases, such as tonsillitis, pericarditis, endocarditis. Of the diarrhœal diseases of the old list, acute dysentery has been placed among the infectious.—*The Sanitarian*.

Infective Inflammation of the Parotid Glands.

The *Journal de Med. de Paris* of January 19th, 1896, contains a study of three cases of this kind, interesting on account of their etiology and treatment, by Regnier, surgeon at the Lariboisière. He says that until recently we have always considered these parotid inflammations as caused by some secondary inflammation of the lymphatic glands. We are now becoming aware of the fact that it is the glandular pockets of the gland itself that are involved, resulting from a primary inflammation of the excretory canal. The infection starts in the mouth and passes up through the excretory canal to the pockets of the gland.

Chassaignac first called attention to this variety, which he called canalicular, characterized by swelling of the parotid region, followed by pus discharging through the duct of Steno. Virchow and Weber also observed cases where the pus and the lesions were in the excretory canals and the alveoli. But Crocq, as early as 1873, tried to prove that every case of parotid inflammation with a general cause is preceded by some inflammation in the mouth, which extends into the gland through the duct of Steno. The recent histologic and bacteriologic researches of Claisse and Dupre confirm this view. In a large number of cases they were able to trace directly the upward extension of the infection from the mouth up into the gland. It is in this way we know that infection finds its way into the liver, the kidneys, the

bronchial tubes and the breasts, through the excretory ducts, and it is probably the same with the parotid gland. But this opinion must not be regarded as absolutely settled, although it has been verified in a large number of cases. Duplay, in his *Treatise on Pathology*, suggested that the infection might arrive by way of the lymphatic glands, and in that case it is not the parenchyma of the gland, but the lymphatic ganglia, that are affected. This location of the inflammation must be borne in mind as much as possible when diagnosing; but if it is of lymphatic origin an abscess will form, the opening of which will show an accumulation of pus. But if the inflammation is in the glandular pockets, and is being infected through the excretory duct, the lancet only brings out a few tiny drops of pus, contained in the pockets of the gland into which it penetrates, while the edema, the swelling and the sensation of fluctuation would have made you confident that there was a considerable accumulation of pus there.

It seems as if lancing it had done no good, but in reality it is followed by a fall of temperature and local improvement, and the issue of pus later through the duct of Steno explains the above phenomena and proves that it is a glandular inflammation with the pus secreted in the acini or excretory canals.

My first case was a woman recovering from typhoid fever, who became very much swollen in the parotid region, with edema, and fluctuation accompanied by fever. Convinced that there was a large collection of pus, I opened straight into the parotid gland, and found to my surprise that scarcely anything issued from the incision, a few tiny drops of pus being distinguished with difficulty in the blood that followed. The temperature decreased, however, and a couple of days later I saw pus exuding from the duct of Steno. The swelling diminished, and a permanent cure ensued. Another case was a man of 45, large, alcoholic, suffering from multiple articular rheumatism and acne. The parotid region began to swell, there was edema and fluctuation, and I opened the abscess as before, using a grooved director and passing through the whole gland, without finding any accumulation of pus. But the temperature fell afterward, and a couple

of days later pressure on the swelling discharged pus through the duct of Steno into the mouth.

A patient came to me suffering from a urinal abscess, which I lanced. Convalescing from this, he was attacked with erysipelas of the face, for the second time in his life. One injection of Marmorek's anti-streptococcus serum was made and the erysipelas passed away, as it might have done without the injection, perhaps.

An abscess next formed at the spot where the serum had been injected, which I opened and found full of streptococci. A few days later the parotid region began to swell, puffiness and fluctuation ensued, and I opened the swelling, out of which poured a large quantity of pus, also full of streptococci. Evidently in this case I had lanced a ganglion abscess, infected through the lymphatic gland.

These three observations show that infection may reach the parotid glands through the excretory canals or the lymphatic glands, producing in one case what Chassaignac calls a canalicular parotid inflammation, or acinous adenitis, and in the other a simple adenitis. In the latter case a certain amount of pus will follow the knife, but in the former case you will not have the satisfaction of seeing the pus escape. But you need not fear that you have made a mistake in your diagnosis. The pus is scattered through the gland, contained in the acini and excretory canals. Lancing always brings relief, lowers the temperature and promotes recovery.

Deodorization of Iodoform.

The *Journal de Medecine* of January 19th, republishes the following from the *Presse Medicale* prefacing it with the query: Why not use di-iodoform? This has all the properties of simple iodoform without any odor, as Hallopeau demonstrated before the Societe de Therapie, in 1894. Jaksch observed that all the antiseptics with a specific odor possessed the property of disguising the odor of iodoform, while their own became scarcely per-

ceptible. Thymol, naphthalin, tar and creolin can be used in this way, preferably the latter, in the proportion of 1 to 2 percent. This produces a brownish powder with a mild aromatic odor. Oppler suggests pulverized coffee in a proportion of $\frac{1}{3}$ to $\frac{1}{4}$. Ten percent conmarin or vanillin disguises the odor of iodoform, and also acid of cinnamon in equal quantity to the iodoform. Laura Goodman observed that after a menthol pencil had been left an hour or two in a bottle of iodoform, the odor had disappeared. There is a bituminous iodoform made by a secret process; and brownish mica-like scales, with a metallic luster, are produced by blending tar with the iodoform to the point of deodorization. Kay made a 10 percent paste of tar, that had no odor except that of the tar; 5 percent produces a powder in which the iodoform is not recognized. Negel's pills are made thus: 3 grams iodoform, 15 grams tar and 0.60 grams extract of opium for 120 pills administered eight a day. Cantrelli mixes equal parts of iodoform, essence of menthol and essence of lavender.

Specific Treatment of Necrosis of the Alveoli and Maxillæ with Aromatic Sulphuric Acid.

BY W. A. MILLS, D.D.S., BALTIMORE, MD.

Read in the Section on Dental and Oral Surgery, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

I desire to bring before your attention, the non-operative treatment of necrosis of the alveoli and maxillæ with aromatic sulphuric acid. I shall cite only two cases in office practice, entering as little as possible into any minute detail of their history or etiology.

CASE 1.—A lady of nervo-bilious temperament, aged 30, called to consult me about a fistulous opening situated at the right side of the superior central incisor which was discharging freely a dark-colored pus. On examination, I found the superior right central and lateral incisors and cuspid teeth dead. Patient in-

formed me they had been so for seven years or more, and had never been treated. I diagnosed the case, as necrosis superinduced by chronic abscesses. I prescribed the following :

R Acid sulphuric aromatic - - - - - $\bar{3}$ ij. 60
 Aqua - - - - - $f\bar{3}$ x. 300

Misce.

To be injected by the patient into the fistulous opening five or six times daily.* The patient was also instructed to visit the office every other day for examination.

At the expiration of two weeks, all discharge had ceased, the soft tissues had fallen into the cavity made by the chemic action of the aromatic sulphuric acid upon the necrosed tissue. An incision was made, extending from the fistulous opening to the right first bicuspid. The cavity was then packed with absorbent cotton saturated with the following :

R Acid carbolic
 Tinct. iodin - - - - - aa $\bar{3}$ ss. 2
 Aqua - - - - - $f\bar{3}$ xij. 360

Misce.

Patient was then dismissed to return the next day, when cotton pledget was removed. The soft tissues having been pushed aside, I was able to see to what extent the bony structures had been diseased. I found the line of necrosis had involved the right facial surface of the superior maxilla from the left central to the right bicuspid teeth, and upward from the alveolar ridge to the anterior nasal spine, a part of which, with bony structure around the apices of the dead teeth, had been destroyed ; only sufficient alveolar septum remained to hold them in position.† I opened the nerve canals of the dead teeth, and cleaned, disinfected and filled them at once. The filling material was forced through the apical foramina, from the posterior surface, and dressed in the usual manner. The patient was then dismissed with instructions to syringe out the cavity twice a day with the carbolic acid and iodine wash, as long as syringe could be used ; afterward the med-

*Bicarbonate of soda and water, used as alkaline mouth wash after every injection.

†A similar case is noted by Dr. Black in American System of Dentistry, vol. 1, p. 950.

icament was to be used as a mouth wash. In five weeks new bone-tissue had filled the void, when no suspicion of the parts having been diseased remained, the outline being quite perfect, and all the tissues in a normal condition.

CASE 2.—Mr. T., a lawyer, aged 40, of sanguino-bilious temperament, presented the following conditions: A fistulous opening situated to the right of the left inferior cuspid tooth, another to the left of the right inferior cuspid; both openings discharging pus copiously. This condition had continued for over a year, and Mr. T. failing to get any relief from many medications, he consulted a surgeon, who diagnosed his case as necrosis, caused, the surgeon said, by the toxic effect of mercury or syphilis. To either being the cause Mr. T. protested most vehemently. Mr. T. was informed that he would have to be operated upon. The first thing the surgeon suggested was to have all the incisor teeth extracted in the hope that nature would have a better chance to throw off the sequestrum. Mr. T. did not object to having the operation performed, but he did object most strenuously against having his teeth extracted, as he possessed a beautiful set, being perfect in form and arrangement. He consulted me to find out if I could in some way manage to save his teeth. I suggested the sulphuric acid treatment, which I thought would not only save his teeth, but save him from having to undergo any operation. After consulting with the surgeon, it was agreed that I should take charge of the case, with the understanding that I was to consult with the surgeon as the case progressed, and not, under any circumstances, change treatment without his knowledge. The treatment in this case was the same as in case of number one. After the first day's treatment, Mr. T. came to the office early in the morning with a very distressed countenance, and said he believed I had aggravated the case, because the flow of pus had been so great during the night that he could scarcely sleep. I assured him it was a good sign, and that the remedy was doing its work well. The first week the teeth became movable and tender to the touch. A vulcanite splint plate was made to hold the teeth in place, and to protect them from shock during the process of mastication. At the expiration of two weeks all dis-

charge had ceased. Then an incision was made from the left fistulous opening to the right, the cavity packed with absorbent cotton saturated with the carbolic acid and iodine mixture (as in first case), and left to remain until next day. When pledget of cotton was removed, the following conditions were presented: Line of necrosis found to have involved the facial surface of the inferior maxilla, from cuspid to cuspid, slightly exposing the nerves at the apices of two central incisors. The septa were nearly destroyed, the teeth were only held in position by their attachment to the external or posterior plate of the alveolar process and gum tissue. Same instructions for injection and mouth wash were given as in former case. In six weeks Mr. T. was pronounced cured—teeth all living and firm, and the continuity of maxilla outline fully restored.

I not only received the congratulation of the surgeon upon the successful treatment of the case, but the most grateful thanks of Mr. T. I take no credit for the successful treatment of these cases, but will give all honor and praise to Dr. Gross, of Philadelphia, who, I believe, was the first to suggest the sulphuric acid treatment for necrosis. Some one may ask the question: How does the sulphuric acid act? In reply, I will say that the bony structures of the human organism contain 33 percent organic matter, 4 percent water and 63 percent mineral matter, 60 percent of which is carbonate of lime. The action of the sulphuric acid, is to seize chemically upon the carbonate of lime, break it down or dissolve it, throwing off carbon dioxide gas; and subsequently the animal tissues, etc., break up through a process of fatty degeneration and flow out in form of pus, etc. The acid in the strength prescribed has no effect upon healthy tissues, except to stimulate them. The advantage of this treatment in the oral cavity over that of operative is: The periosteum is in no way injured, thereby not causing a loss of the continuity of outline of any structures, nor the loss of teeth through the necessary extraction in removal of the sequestra.

Miss G., the first case described, told me not many weeks ago she had not fully appreciated what I had done for her, until after she had made a visit to Germany, some three years ago. She

informed me of a cousin living in Germany, who had a similar case with her own, age the same, conditions about the same, but the treatment and final result quite different. In her cousin case the teeth involved had been extracted by a surgeon prior to the removal, by operation, of the sequestrum. During the operation, the periosteum had been injured, causing a loss of a great part of the maxilla; in consequence, her face was disfigured for life. Moreover, she had never been able to have the continuity of outline restored by any artificial means. Now, suppose the two cases I have cited had been treated by operation, in like manner, what would have been the consequences?

In conclusion, I would call the attention of the surgeon, no matter how prone he may be to operate in the oral cavity, not to do so before he has failed in the sulphuric acid treatment, or use more conservative surgery than is usually practiced in similar cases.—*Journal Am. Med. Ass'n.*

A New Picture Process.

DES MOINES, IOWA, March 9, 1896.

To the Editor:—I have taken considerable interest in the published reports of the penetration of Roentgen's X rays and the application of the discovery to surgery, as well as to reports of similar results without the use of Crooke's tubes. By virtue of accident, I can report similar result independent of Crooke's tube, dynamo, or any other agent of electrical light or force, so far as I know. Some months ago I placed a piece of sensitized paper in a book and it was forgotten. When discovered a few days ago, the page of the book was clearly and legibly printed upon the sensitized paper, as a positive. The discovery was so bewildering that I did not think of fixing it at the time, but next morning, when I went to do so, the image had vanished, and I lost the evidence of what I saw. The experiment, however, can be repeated by any one. If the impression had been from ink or oil, it would not have faded.

A. G. FIELD, M.D.

IN pulp exposure, place the devitalizing medicine in the dentine away from the point of exposure. You will thus secure devitalization with little pain, and very often more rapidly than if placed directly upon the exposed pulp. If the caries which exposes the pulp is upon the distal portion of a molar, then make a new cavity upon some mesial aspect of the tooth, and into that place the devitalizing medicine. This new cavity afterward gives direct entrance to anterior roots, which are usually necessary for a perfect operation.—*Western Dental Journal*.

A Slight Misunderstanding.

PAT Alexander, to whom Shirley makes reference in his memoirs, on one occasion met Dr. William Chambers on the North Bridge, Edinburgh, and asked him, excitedly: "Have you found her?" "Found whom?" "That woman you were advertising for." "Woman! I have not been advertising for any woman." "Oh, yes; here it is," and from his waistcoat pocket he extracted a soiled advertisement clipped out of the *Scotsman*. The doctor took it and read: "Wanted, a woman to clean Chambers." When he looked for Alexander that gentleman had disappeared—wisely, perhaps.—*Sunday Chronicle*.

"Ter Die."

It is not always good to be too curious, especially if you happen to be a hospital patient. One such was greatly concerned about what the physician wrote on a card at the top of his bed. While the nurse was not watching he took down the card, and immediately set up a great hullabaloo, groaning and sobbing in a dreadful manner. The nurse came to him asking him what was the matter. "Oh, dear! oh, dear!" was the response, "I've got to die!" "What is it? Do you feel worse?" asked the nurse in tender tones. "Not particular, mum, but I've got to die. The doctor has wrote it on my ticket." The poor fellow had so interpreted "ter die," and it was difficult to calm his fears.—*Exchange*.

The Use of Vinegar to Prevent Vomiting after Chloroform Inhalation.

Lewin (*Revue de Chirurgie*, September, 1895, p. 786), states that he has used his method for the prevention of vomiting after chloroform anæsthesia in 174 cases. These embraced all kinds of operations. In 125 cases success was complete. In the remaining 49 cases vomiting occurred, but it was slight in amount and consisted mostly of glairy mucus. It usually occurred toward evening of the day of operation and ceased by nine o'clock the next morning. The infrequency as well as mildness of the vomiting constituted a practical success, because under the usual chloroformization he has seen vomiting last three days.

Some of the patients vomited because the use of the vinegar cloth was not continued a sufficiently long time.

The following is the method of procedure: A piece of linen the size of a napkin is wet with ordinary vinegar, the surplus vinegar is wrung out and the cloth laid over the chloroform inhaler. This latter is then withdrawn from under the cloth without removing it. This is to prevent the patient respiring air which has not been impregnated with the vinegar vapor. The cloth should remain on the face as long as possible, at least three hours. Should the cloth become dry by the evaporation of the vinegar it should be again moistened. Should the patient desire to expectorate, a cloth or handkerchief is to be slipped beneath the cloth wet with the vinegar. The author claims that it is the sudden inspiration of pure air that causes nausea.—*University Med. Magazine*.

The Influence of Mind.

Great brain and nerve strain, as in insanity, brittles the bones; grief and fright blanches the face and hair; fear paralyzes the heart, depresses the temperature, causes excessive and clammy perspiration; anxiety arrests secretion and shrivels the skin; remorse wastes away the body; anger flushes the face

and so fills the brain with blood that its vessels burst and the victims fall with apoplexy; shame flushes the cheek, slows the heart and respiration; sorrow shows itself in tears; love and good fortune brighten the countenance and quicken the step and pulse and lift up the form; while adversity and remorse sadden the face, slow the pulse, bend the form, and depress the bodily movements. These things, and many needless to mention, show us the potency of mental influence, through its proper neural channels, on the movements of the organism. We cannot deny them in regard to the stomach. On the contrary, as we see the systole of the heart arrested by emotion, so we see digestion stayed by disagreeable and depressing thought. Mental force, through psycho-neural media, pervades the body, and the stomach is not exempt from its invigorating or depressing influence over its physiologic functions.—C. H. HUGHES, M.D.

Limewater.

It is well known that limewater has a beneficial effect on the growth of children, and in countries where the drinking water is impregnated with salts of lime, the men are apt to be tall. An English medical authority states that for a perfect sanitary diet, alkaline water is needed for every person who eats heavily of meat, and this means nearly every one excepting the vegetarian.

Aconite to Abort Colds.

The *Medical Record* strongly advocates the plan of giving aconite in the abortive treatment of colds. Small and frequently repeated doses are given, with the result that the fever is controlled, the pains in the muscles disappears and the patient put on the road to recovery. Aconite is a powerful aid in the treatment of acute bronchitis and colds in the head and chest.

By climate, by food, by fresh air, by exercise, by rest, by bathings, by hygienic surroundings, we do much to change the soil in a sufferer from a lung complaint.

The St. Petersburg School of Medicine for Women.

The Russian Government has assigned an annual grant, equivalent to about £10,000, to the Medical School for Women in St. Petersburg. The city undertakes to provide another £2,400, and private munificence has raised an endowment fund of £70,000. Preliminary courses are already being given, but another year must elapse before the school can be housed in its own buildings.—*British Med. Journal.*

Painless Tooth Extraction.

R	Oil wintergreen.....	2 drachms.
	Chloroform.....	1 drachm.
	Sulphuric ether.....	1 drachm.
	Chloral hydrat.....	2 drachms.
	Oil of cloves	4 drachms.
	Alcohol	12 drachms.

M. Apply with cotton, pressed on each side of the tooth.—*Medical Standard.*

THE writings upon antiseptics are multiple, and their appearance ever and anon has become monotonous to many of us, yet there are operators to-day who fail utterly to observe one law of antiseptis. I visited a dental office recently where the operator disregards the teachings of cleanliness to a painful extreme. Several patients called during my stay, and each one was met with the same unsterilized instrument. Put yourself in their place, how would you like such shameful treatment? Is not this an argument in favor of antiseptics?—DR. D. E. WIBER in *Medical Brief*.

Asbestos.

A novel surgical dressing is advocated by Dr. Kane in the use of asbestos, in its various forms.

It is claimed for this substance that it is soft, non-irritating, possessing absorbent qualities superior to cotton and has the great advantage of sterilization without elaborate apparatus.

Dr. Kane is accustomed to carry it in his surgical case and to sterilize it at the time of the operation by throwing it into a fire and allowing it to attain its characteristic cherry color by the heat of the coals.

He also uses the same dressing repeatedly by this method of sterilization. If all is true that is claimed for this material, it possesses undoubted value.—*Atlantic Med. Weekly.*

Is the Bacteriological Theory of Disease Waning ?

It is an old saying "that every dog has his day," and it seems to be equally true of medical theories. We have observed, during the last year, that much has been said by the most eminent of authorities tending to express doubt as to the invulnerability of the germ doctrine as the sole cause of disease. The ultra germ theorists are dropping out of sight and allowing the more rational facts of climatic and atmospheric changes as producers of disease full sway in the theories of the present day.

It was not long since a simple catarrhal inflammation of the nasal passages, commonly called a "cold," was considered the result of bacillary invasion. We now are called upon to consider the influences exerted by draughts, sudden changes in atmospheric temperature and other unhygienic conditions, reverting to the former days when these surrounding elements were looked upon as the sole authors of disease.

But our forefathers were not always so far out of the way in their reasoning, and there were no greater fools in a century back than sometimes exhibit themselves at the present time. The one great failing with the individual members of the profession of the nineteenth century is the inordinate desire for notoriety and the consequent tendency it exerts for rushing forward with every new theory until it becomes a veritable fad.

Fads are often instructive and usually safe enough if not carried to excess. So it is with the germ doctrine. We have bacilli and bacilli—innumerable quantities of them—growing in such situations as best support them by favorable environments.

Probably many of them produce toxins. Undoubtedly many are harmless. Possibly some may even be termed curative by their antagonism for those that are virulent. But all this does refute the fact that the bacillus, of whatever genus he may be, cannot find in the purely healthy human blood-cell a favorable field for his cultivation and growth. That must be sought for in the degenerated corpuscle.

We must study, then, the various causes which influence the degeneration of the blood-cell if we would get at the real prime mover in etiology. These are, undoubtedly, more or less controlled by the sensory nerves acting through outside stimuli and explains vastly better how the production of a "cold" may arise from draughts, bad air and warm winter storms.

It is, however, among the contagious diseases that the claims of the germ theory seem to have their strongest hold for recognition; but when one stops to think that pure air and thoroughly oxygenated blood are the best preventives for contagious diseases, it will be readily understood how we may find specific germs early in a given disease without their proving more than symptomatic phenomena.—*Times and Register*.

A Slap at the Bacteriologists.

These are useful assistants, but they are tyrannical masters, and the results of a given treatment must, after all, be judged, not in the laboratory, but in the hospital ward and the sick room. A check must be imposed on 'garrulous bacteriologists' who show a disposition to ride the cock-horse among us. We are grateful to them for such assistance as it may be in their power to render to medical science, but we cannot allow them to dictate to us what conclusions we are to draw from clinical investigation. Bacteriological statements are matters of inference, but clinical observations are facts; facts, too, which concern us more nearly than the interesting, but too often contradictory, deductions which foreign laboratory men foist upon us at the point of the scalpel.—*Medical Record*.

Cheerfulness.

Cheerfulness, first of all, is a duty a man owes to himself. Any physician will tell you that one of the best preventives of disease is cheerfulness, and one of the best curatives when disease has set in, is that happy and hopeful disposition that feels it is all for the best, whatever comes, health or sickness, life or what they call death. Such a man will be restored to health under the most adverse circumstances, while the strong but despondent and melancholy disposition will weaken and fade away. All the doctors in the land cannot save a man who has not energy enough to will his own existence. Thinking of this, the great English historian said that cheerfulness was worth more than five thousand pounds a year.

Moreover, a man owes it to his family to cast trouble away when he comes to his home. He is a selfish being who, having trouble in his trade or calling or profession, always brings his trouble home for the purpose of making every one else miserable. There is no bravery or manliness in that kind of thing, no thoughtfulness for others' happiness, no trust in God that all will be for the best. The one at home may also forget and worry the already tired man with complaints beyond his power to change. It may, therefore, be set down as an axiom that home happiness depends upon the woman meeting the man with a pleasant face, though her body may be weary and her heart sick; it depends upon the man having a kind and a cheerful countenance, though that day all had gone wrong, and he had found, or thought he had found, that all men were liars.

It comes naturally to pass that if cheerfulness is a duty a man owes to himself and his family, it is also one he owes to the nation and age in which he lives. What are commonly called hard times are caused, in nine cases out of ten, by the people, as a nation, slowly or suddenly getting despondent, slowly or suddenly failing to trust in the nation as a nation. But in reality there is usually no reason for hard times. There is just as much money in America, and more, than there was a few years ago. The crops have not failed, nor the honesty of trade, more than at

any other time. Think of the humble way our fathers lived. The people simply fall into the bad habit of saying times are hard and money tight. After a while so much talk leads men to believe something is wrong, and then every man fails to work as hard as he can, holding every cent of money he can get hold of, and thereby comes hard times. It is like the sweep of a pestilence over a land. More than half the people who get the cholera, or any other scourge, get it by fear. Every man who joins in the talk about hard times will suffer from what his own words and want of trust may bring. After a while, when men find that it yields rather poor interest keeping their capital locked up, they will begin again to send their money out, and then, in commercial language "confidence will be restored." After awhile, when men get to believing in God, and to giving his church as they ought to give his divine body, God will open the windows of heaven, as of old, and the blessings of better times will come.—*Dietetic and Hygienic Gazette*.

Possibilities of the X-Rays in Surgery.

In the first cable dispatch announcing the discovery of Professor Roentgen we were informed that he had succeeded in locating a bullet in the human body by photography, and the surgical side of the discovery, thus early brought to the front, has been kept well in mind and has formed the subject of a good deal of experiments. According to a leading editorial in *The Medical News* of February 22d, surgery has probably gained an aid of real value, although, of course, its powers have been a good deal exaggerated. Says the editorial:

"The wild fancy that this power was a peculiarly penetrating form of 'vision'—a sort of photographic second-sight or 'materialized eye'—which could be caused to calmly penetrate to just such depths of the human tissues as the operator desired and reproduce a complete picture of everything it found at that particular level, is far from the truth. . . . Unfortunately for our antivivisection friends, it must be admitted, also, that the early

hope inspired by this power that we should thus be enabled to watch the various functions of the internal organs of the body, and so render vivisection unnecessary, is fast fading into the baseless fabric of a dream.

“The futility of such speculation becomes promptly apparent when we recall the fact that this new picture is not a photograph at all, but simply a shadow or silhouette, so that no details whatever—except as they depend on density and thickness—can be reproduced. . . .

“As far as our present knowledge goes the positive advantages to medicine seem to be limited to three conditions—fractures, dislocations and tumors of bones, encysted bullets, needles or pieces of glass in the tissues, and earthy calculi. In the first class of conditions its advantages would appear to be slight unless great advances upon present powers and methods can be made. The *tactus eruditus* is certainly a delicate and reliable sense in investigating fractures and dislocations, and it is questionable how much help can be obtained by such crude and blurred shadow pictures as can at present be obtained. In recent cases of fracture or dislocation the delay and discomfort to the patient necessarily involved in the application of the method would be practically an insuperable objection to its use for purposes of diagnosis. . . .

“As a means of ascertaining that the parts had been placed in proper position after adjustment, it would, however, be most valuable, for of course all splints and dressings, except plaster or metallic splints, would be as ‘translucent’ as the soft tissues themselves. Its principal value, however, would be in obscure cases with much swelling, ‘green-stick’ fractures for instance, in partial luxations, and in medico-legal cases when the proper setting of a fracture or reduction of a dislocation was in question.

“In the locating of bullets some brilliant results have been already recorded, in which the bullet, beyond the reach of touch or probe, has been found by the X-ray and successfully removed.

“In locating renal and urinary calculi, the Roentgen method will be of great value, although, of course, only as an aid to the sound in the more obscure cases. And Nusser, of Vienna, has

already used it with success in demonstrating the presence of a stone in the pelvis of the kidney. It is not yet known whether gall-stones are sufficiently opaque to be detected by its rays."

In conclusion it is suggested that the rays may perhaps prove to have germ-destroying qualities, although the experiments of Dr. Park, of the New York Board of Health, do not bear out this view. The article closes with the following brief notice of these experiments:

"In order to test the influence of the Roentgen rays upon germ life, pure cultures of diphtheria bacilli were subjected to the direct effect of the rays from a Crooke's tube for thirty minutes. Cultures were made both before and after the exposure which were developed in the laboratory by Dr. Park, who reports that no effect whatever was discovered to have resulted from the exposure."

Electrical Effects of Sprays.

A correspondent, says *Appleton's Popular Science Monthly*, writing to us concerning the effect of various atmospheric conditions on health and bodily vigor, cites his own experience in a fire-brigade as having led him to believe that deficiency of ozone and other unfavorable conditions, and the effect of atmospheric impurities may be alleviated by inhalation through a spray of cold water. A method of ventilation of railroad cars which was very comfortable to passengers riding in cars so treated, but has been disused, depended upon the application of this principle. Its value is further confirmed by what Prince Krapotkin has said in one of his recent articles on current science concerning the theory of the development of electricity by spattering water. A few years ago Herr Lenard undertook a series of observations in Switzerland, on the electrical effect of waterfalls. It appeared that even small cataracts, only a few feet high, send into the air considerable charges of electricity, provided they bring down a large amount of rapidly dashing water. The smallest jets of water that drip on the rock sides, and even roaring streamlets, have the

same effect. He suggested that the chief cause of electrification, is the tearing asunder of the drops of water as they fall on the wet surfaces at the bottom of the waterfall. The experiments on which these views are founded accord with the demonstration by Lord Kelvin and Messrs. Maclean and Goto that air, even absolutely dust-free, can be electrified by a jet of water. This source of electrification is further shown to be by no means insignificant, and the amount of electricity sent into the air in this way is immense. The importance of these facts in the economy of nature, says Prince Krapotkin, is self-evident. "The supply of electricity in the air is continually renewed. The waterfalls in the valleys, the splashing of the waves on the shores of lakes and rivers, and the splash of drops of rain on the ground send masses of negative electricity into the air; even the watering of our streets, and of our plants in the orchards has the same effect on a limited scale. On the other side, the waves of the sea, as they break against the rocks and fall back in millions of droplets upon the beach, supply the air with masses of positive electricity the amount of which rapidly increases after each storm. And when we stand on the sea-beach, we not only inhale pure ozonified or iodized air; we are, so to say, surrounded by an electrified atmosphere, which, as already remarked by Humboldt and often confirmed since, must have a stimulating effect upon our nervous activity as well as upon the circulation of sap in plants."

The Treatment of Burns.

Bardeleben treats burns after the following plan: The injured part is first thoroughly washed with carbolic acid solution from $2\frac{1}{2}$ to 3 percent, or with a solution of salicylic acid about 3 in 1,000. All the bullæ are then punctured and the serum allowed to escape, after which the whole part is thoroughly dusted with finely-powdered nitrate of bismuth, and a thick layer of cotton wool applied. The latter is changed whenever it is impregnated with the discharges from the wound. If the burn is a very extensive one, the powdered bismuth may be set aside,

and a bismuth ointment used instead. The author affirms that with this dressing cicatrization proceeds rapidly, and there is less discomfort than when any other dressing is employed. Despite the large quantities of bismuth that have been applied, no toxic symptoms have been noted in consequence of its use.—*The Medical Age*.

Camphor for Ether Collapse.

Schilling (*Munchener med. Wochen*) affirms that hypodermic injections of camphor in larger doses than the text-books advise are beneficial in ether collapse. Half-grain doses are very effective, but the results obtained from one-grain doses are extremely gratifying. The solution should be one part camphor to ten parts oil. As the camphor is eliminated within two hours it has no cumulative effect.—*N. Y. Med. Record*.

Insomnia.

Insomnia is really a mere symptom, and will no more be treated *per se* by the intelligent practitioner than the eruption of an infectious fever or the diarrhœa of typhoid fever. The great duty of the medical man is to trace it to its causes and its associations, and to deal with these. If it follows influenza, it must be regarded, like all the other *sequelæ* of that protean disease, with some patience, but with much conviction that it will yield, sooner or later, to sound treatment. A very important point is to ascertain whether the insomnia is attended with pyrexia or otherwise, for of all means for producing restlessness, and marring the night's repose an increase of two or three degrees in the temperature is among the most effective. Apart from general pyrexia, it is well to note all local peculiarities of heat, whether in the direction of excess or defect—cold feet, a hot bed, etc.—and to deal with them accordingly. It is, of course, equally important to ascertain any error of function that can reasonably be associated with such a symptom. Such errors may frequently be found in the

gastric or renal or hepatic functions, and their removal will quickly alter the whole complexion of the patient's life both by night and by day.—*Lancet*.

Chlorate of Potash as a Tooth Powder.

Unna recommends chlorate of potash as a tooth powder, and at the same time as an excellent disinfectant for the oral cavity. The brush is dipped into the powder as into any other powder, and the teeth are brushed lightly, the powder forming a paste with the saliva. Immediately afterward the mouth is rinsed out with water. For some time a salty taste remains which is not unpleasant. Unna knows of no remedy which abates bad breath due to decomposition of food between the teeth, and in the pharynx after remaining in the cavities over night. He had many such cases that sought his advice and all were cured by above treatment. There are cases, though, when a sore mouth or a fissure becomes very painful if the pure chlorate of potash is used, and in those cases he recommends a paste to be made of carbonate of lime, rhizoma, iridis, soap and glycerine equally mixed, then add the chlorate of potash to make a 50 percent paste.

Medical Students in Paris.

It is not only our own country that suffers from what might be termed a plethora of professional men. The Faculty of Medicine at Paris, alarmed at the overcrowding of the clinics and the courses of practical instruction in surgery, anatomy, pathology, etc., has adopted new regulations, both as regards students of native birth, and particularly foreigners. The standard for native students has been raised, the baccalaureate in letters alone being no longer sufficient in order to matriculate in the medical school, an extra year in scientific work being required in the future. In the case of foreigners two baccalaureates are required—the A.B. and the B.S.—and as far as possible students from other lands will be directed to the provincial schools, at least for the

first two or three years of their medical studies. These regulations apply only to those that matriculate as candidates for a degree. Paris will undoubtedly prove as hospitable to those that go there for special work only, as it has heretofore been. But even if all foreign students should find the *entree* to medical work in that beautiful capital more difficult than it formerly was, yet we cannot blame the faculty for its move, which is really one in the right direction. Moreover, "charity begins at home," and if the French medical student has been prevented from enjoying the full advantages of the opportunities for medical instruction offered at Paris, through the influx of strangers, the faculty is but doing its duty to restrict such an abuse. The number of medical students in France has nearly doubled since 1885. And now, out of over 5,000 students nearly one quarter are foreigners. As the degree given them confers the same privileges upon them as upon native-born physicians it seems but just that the foreign-born should be placed on the same footing as regards preparation and time required for the degree.—*Pacific Medical Journal*.

THE medical cuckoo is the American physician that rushes to the public to proclaim to the world the "infallible" value of every sensational fad sprung in a foreign country. When will American physicians (and American girls) overcome their sensational, mawkish yearning for exotic oddities? Let's be original; we have the brains in America.—*North American Medical Review*.

"WE have been emancipated from the trammels of theory and superstition, and the medicine of to-day is largely based upon exact observation and experimental demonstration. In other words, we may now properly speak of medical science, for, while our knowledge in many directions is far from being complete, it is founded upon a scientific of observation and experiment, and is being rapidly extended by scientific methods."—*Sternberg*.

The Influence of Odors upon the Voice.

"It is well known to singers," says *Popular Science News*, "that perfumes influence the voice. The violet is regarded by artists as the flower which especially causes hoarseness. The rose, on the contrary, is regarded as inoffensive. M. Joal, who has studied the subject, says he does not believe that the emanations of the violet prevent free vibrations of the vocal cords, and thinks that if this flower has any injurious effect upon the voice, the rose and other flowers must have the same action. There is, in fact, nothing fixed or regular in the influence exerted by the perfume of flowers. It is a matter of individual susceptibility. Some are affected by the lilac; others by the mimosa. Others, again, are in no manner affected by flowers, musk, amber, civet, or the various toilet preparations, but experience obstruction of the nose, hoarseness and oppression, from the odors of oils, grasses, burnt horn, and the emanations from tanneries and breweries. It is very difficult, adds M. Joal, to furnish an explanation of these peculiarities, and we must content ourselves by regarding them as examples of olfactory idiosyncrasy. It cannot be denied that odors may occasion various accidents and vocal troubles, especially in persons of nervous temperament and excessive sensibility."—*Literary Digest*.

Face-Reading.

"In the acquisition of the art of speech-reading by sight," says *The Popular Science Monthly*, "the eye of the deaf pupil becomes accustomed to certain positions of the organs of articulation, and thus learns to understand the spoken words of others, although he does not hear them. In teaching this art, Lillie Eginton Warren has found that the forty odd sounds of the English language are revealed in sixteen outward manifestations or pictures, and practice in following them as they rapidly appear in a face enables us to understand what is said. Some faces differ from others in strength of expression, and thus many show less action in the lower part. Nevertheless, there is in all per

sons a general approach to a certain definite movement of muscles, particularly when in animated conversation, and the trained eye notices what the inexperienced one fails to discover. After attaining a degree of proficiency in this art of expression-reading, persons seem to feel that they hear instead of see the words spoken. Reading our language in this way may be said to be mastery of a new alphabet, the rapidly moving letters or characters of which are to be found upon the page of the human countenance."—*Literary Digest*.

IN the opinion of *Engineering*, London, the compulsory adoption of the metric system of weights and measures two years after the passage of the law to that effect, as recently recommended by a parliamentary committee, will be enormously beneficial. It says: "The time has gone past when it is necessary to furnish arguments as to the advantages of the metric system over present confused methods. Those whose business it is to deal with foreign countries know best how much they lose when they come into competition with manufacturers from Germany and Belgium, from the inability or indisposition of other nations to comprehend British standards." The paper, which is a recognized authority, considers it certain that the metric system will be adopted in England.—*Literary Digest*.

THE oldest medical recipe is said, by a French medical journal, to be that of a hair-tonic for an Egyptian queen. It is dated 4,000 B. C., and directs that dogs' paws and asses' hoofs be boiled with dates in oil.—*Literary Digest*.

THE latest antiseptic, produced in Germany, is *potassiumorthodinitrocresolate*. It is odorless and cheap, and is said to be destructive to all bacteria. A portion of the potency of this substance is supposed to reside in the name.—*Atlanta Med. and Surg. Journal*.

What is a Poison?

This question is propounded to the editor of *The National Druggist* by a correspondent who criticizes the definition of the word "poison" as given by many of the dictionaries. Says this correspondent:

"Webster says a poison is 'any agent which, when introduced into the animal organism, is capable of producing a morbid, noxious, or deadly effect.' Now, should there not be a limitation as regards quantity of the substance? It seems so to me; because there is scarcely a substance known which, if taken too freely, will not produce morbid, noxious, and even deadly effects."

To this query *The Druggist* replies editorially as follows:

"Your criticism of the definition given by Webster is entirely justifiable. The definition of the word given in Dunglison's Medical Dictionary is almost identical with that of Webster, and so is that of Dr. Billings in his great National Medical Dictionary. An English authority, whose name escapes us, defines a poison as 'a drug that kills rapidly when administered in small quantity,' which, while it gives the element missing (the limitation referred to by the querist), is far more liable to criticism than those quoted. All poisons are by no means drugs—as witness the poison of typhus, of malaria, etc. A celebrated English toxicologist, recently deceased, we believe, Dr. Melmott Tidey, defined a poison as 'any substance which, otherwise than by the agency of heat or electricity, is capable of destroying life by chemical action or its physiological effects upon the system.' This, too, is not entirely satisfactory, as admitted by the author, who confessed the difficulty of giving a true and comprehensive definition. If it were true, there is scarcely a substance in the whole armamentarium of medicine that would not fall under the term. Nobody, for instance, thinks or speaks of quinine as a poison, and yet there are numerous instances recorded wherein it has caused death, to say nothing of the 'morbid' and 'noxious' effects of which we have ample evidence every day. Glycerine, too, merely a feeble laxative when taken into the

stomach through the mouth, when introduced into the 'animal organism' by direct infection into the blood causes extreme nervous perturbation, and, in the lower animals, death.

"It would seem to us, therefore, that the following definition would be more nearly correct and comprehensive:

"Any substance which, if introduced into a living organism in small amount, or quantities beyond and over a certain definite limit, which latter is variable in each substance and for each class of organism, is capable of destroying life, either by chemical action or by its physiological effects. Like Dr. Tidey, we believe that 'if a substance is a poison it is deadly—if it is not deadly it is not a poison.' Substances which do not kill are merely noxious or hurtful."

Hardening Steel by Gas.

The Germans are interested in a new process for hardening steel by means of gas, says *The Engineering and Mining Journal* (March 7). The invention originated with the famous French steel and iron firm, Schneider & Co., of Creuzot. It is a well-known fact that gas, under great heat, deposits carbon in solid form. Upon this depends its light effects, and also the formation of the so-called retort graphites, a thick covering of pure carbon on the walls of the gaslight retorts. The gas that strikes the retort walls deposits part of its carbon upon them. This is the fact upon which Schneider bases his very useful invention—a process for cementing together (uniting) steel-armor plates. It is said to be very important in the production of armor plates to have them comparatively soft inside and hard outside. This hardening is obtainable by the application of carbon. Formerly, the process of hardening consisted in covering the plates with layers of coal and heating them till they glowed. Schneider's process puts two plates into a furnace, one on top of the other, with a hollow space between. This space is made gas-tight by means of asbestos packing put on around the edges, and the plates are heated red-hot, while a stream of light gas is poured

into the hollow space indicated. The carbon thrown out by the gas is greedily taken up by the glowing plates until they are thickly covered. The depth of this carbon covering can be regulated by the amount of gas admitted. In order to secure regular and uniform action during the process, and to prevent the pipes that carry the gas to the hollow space from absorbing any of the carbon, they are insulated in other pipes through which water is constantly circulating. It is believed that this simple and rapid carbonizing process will soon be applicable to many other branches of the steel industry.

What Becomes of the Microbes?

The old question, "Where do all the pins go?" would seem easy of solution beside the same inquiry with regard to the germs, beneficent or disease-producing, that grow and multiply by myriads in soil, air and water. *The Hospital* gives us an answer, so far as those are concerned that effect an entrance into our systems—no small number, as will be seen from the following quoted paragraphs. The sum and substance of it all is that if the bodily health is good, the bacteria perish in the digestive organs, otherwise—so much the worse for us; and from these facts an entirely obvious moral is drawn. Says the article referred to:

"We hear so much of microbes, and are so constantly assured that the air is so full of them, that it becomes a matter of no small interest to ascertain how we are protected from them, or, in other words, how it is that living as we do in the very midst of a cloud of micro-organisms, which we know by experience are able very quickly to reduce to putrescence substances which, so far as chemical composition goes, are like unto ourselves, we still remain protected from their attacks. The vulnerable point clearly is the mucous membrane of the air-passages and the digestive organs. As regards the latter, we may well believe that in health we are protected by the activity of our digestive processes; but in reference to the air-ducts, over the moist surfaces of which the foulest air is constantly drawn, it is a problem of

the greatest interest to decide whereabouts the microbes, which we know are constantly entering, are stopped. The recent researches of Dr. St. Clair Thomson and Dr. Hewlett, of the Bacteriological Department of the British Institute of Preventive Medicine, throw much light upon this question. They say that, on an average, about 1,500 micro-organisms are inhaled into the nose every hour; while in London it must be a common event for 14,000 of them to enter during one hour's tranquil respiration. Expired air, however, is practically sterile, and it would seem that this purification is not, as some have imagined, performed in the air-tubes of the lungs, for it has been found by repeated observation that they have vanished before reaching the trachea, the mucus from which is sterile. Evidently they are caught in the nose, for on testing air from the naso-pharynx they were found to be practically all gone. Nevertheless, the mucus in the nose does not appear to be itself a germicide. It does not kill the microbes, but it prevents their developing; and as microbes are only harmful by their monstrous power of multiplication this is sufficient. Meanwhile they are rapidly swept on by the cilia toward the digestive tract, where, doubtless, they share the common fate. The moral of all this is—breathe through your nose and keep your digestive organs in good working order, then the microbes, pathogenic, saprophytic, or whatever they may be, will meet their doom.”—*The Literary Digest*.

Decline of Alcohol as a Medicine.

BY T. D. CROTHERS, M.D., HARTFORD, CONN.

Thoughtful observers recognize that alcohol as a medicine is rapidly becoming a thing of the past. Ten years ago leading medical men and text-books spoke of stimulants as essentials of many diseases, and defended their use with warmth and positiveness. To-day this is changed. Medical men seldom refer to spirits as remedies, and, when they do, express great conservatism and caution. The text-books show the same changes, al-

though some dogmatic authors refuse to recognize the change of practice, and still cling to the idea of the food value of spirits.

Druggists who supply spirits to the profession recognize a tremendous dropping off in the demand. A distiller who ten years ago sold many thousand gallons of choice whiskies almost exclusively to medical men, has lost his trade altogether and gone out of business. Wine men, too, recognize this change, and are making every effort to have wine used in the place of spirits in the sick-room. Proprietary medicine dealers are putting all sorts of compounds of wine with iron, bark, etc., on the market with the same idea. It is doubtful if any of these will be able to secure any permanent place in therapeutics.

The fact is, alcohol is passing out of practical therapeutics because its real action is becoming known. Facts are accumulating in the laboratory, in the autopsy room, at the bedside and in the work of experimental psychologists, which show that alcohol is a depressant and a narcotic; that it cannot build up tissue, but always acts as a degenerative power, and that its apparent effects of raising the heart's action and quickening functional activities are misleading and erroneous.

French and German specialists have denounced spirits both as a beverage and a medicine, and shown by actual demonstration that alcohol is a poison and a depressant, and that any therapeutic action it is assumed to have is open to question.

All this is not the result of agitation and wild condemnation by persons who feel deeply the sad consequences of the abuse of spirits. It is simply the outcome of the gradual accumulation of facts that have been proven within the observation of every thoughtful person. The exact or approximate facts relating to alcohol can now be tested by instruments of precision. We can weigh and measure the effects, and it is not essential to theorize or speculate; we can test and prove with reasonable certainty what was before a matter of doubt.

Medical men who doubt the value of spirits are no more considered fanatics or extremists, but as leaders along new and wider lines of research. Alcohol in medicine, except as a narcotic and anæsthetic, is rapidly falling into disfavor, and will soon be put aside and forgotten.—*Exchange.*

Alcohol as a Panacea.

The following is from a recent lecture by a prominent physician who is not known as a reformer nor prominent in the temperance cause :

“Of what use is alcohol in medicine? We have a better heart tonic in digitalis ; as a lung tonic, a vastly better in strychnin ; nitrate of amyl acts quicker ; atropin warms up better. To tide over a dangerous time we would prefer iron, quinine and strychnin, concentrated food, and attention to hygiene. Is it capable of prolonging life in any way, or of assisting nature in throwing off the microbes of disease? The most extravagant claims have been made for it by the laity. It is the one panacea for all the ills to which human flesh is heir. But when we come to look at its effects in a fair and impartial manner, do not its claims as a therapeutic agent rest on a very unstable foundation? It prevents oxidation of the tissues. Physiologists tell us that when taken into the system the effect of alcohol on the red blood corpuscles—which are the oxygen carriers—is to lessen their power of giving off oxygen, and in this way the oxidation of tissue is interfered with. It does not require any great stretch of the imagination to see that while this condition of inactivity exists all the organs of the body must suffer, for any interference with the supply of oxygen will necessarily interfere with the evolution of force. In ‘Flint’s Physiology’ it is said : ‘Alcohol is capable of being absorbed and taken into the blood, but it passes out again unchanged. It cannot be regarded as an ailment, and hence cannot take the place of articles that are assimilated.’ The fact that those who indulge in alcoholic liquors are unable to endure the same amount of fatigue is conclusive evidence that alcohol is in no sense a food. Men have been enabled to endure the extremes of heat and cold much better without alcoholic liquors of any kind than with them. The effect of alcohol on the human organism, in either health or disease, is unfavorable, as its use tends to increase the risk of infection in contagious diseases, and the progress is rendered more grave because of diminished resistance on the part of the organism in

either health or disease. It is perfectly safe to predict that the time is not far distant when it will be as rare for a physician to prescribe alcohol as it is now for him to prescribe blood-letting, and when a healthy man will no more think of taking alcohol, with a view of preserving health, than he would strychnin for the same end."

A Report of the Committee on the Abuse of Alcoholic Drinks from a Sanitary Standpoint.

This report was presented at the Denver meeting of the American Public Health Association by a committee previously appointed for the purpose. We are sorry to find the authors of this paper taking sides with the popular but deceptive and fallacious theory that the injury arising from alcoholic liquors is wholly due to their abuse, and that no reasonable objection can be offered against the moderate use of wine and beer. The astonishing position is taken that beer, claret and allied drinks aid digestion and assist in the conversion of starchy foods. Says the committee, "Wine strengthens and cheers without inebriating," an affirmation which to the physiologist is ludicrously absurd. Next month we shall undertake a somewhat extended review of this article, which, coming from so high an authority as the American Public Health Association, must have a more or less decided influence upon the public.—*Bulletin of Am. Med. Temp. Ass'n.*

Discussion of a Paper on "The Dentist in his Profession Among the People.

BY DR. S. B. HARTMAN, FT. WAYNE, IND.

Read before the Tri-State Dental Meeting at Detroit, June, 1895, and published on page 611 in the Dental Register December last.

J. C. WALTON, Norvell, Mich.: Dr. Hartman's boy, who applied to the college for admission, was a typical aspirant to dental knowledge to-day. Generally we have looked upon dentistry as a genteel pursuit, permitting support without manual toil, requiring only a clever knack of adapting oneself to circumstances, a little finger dexterity, a few dollars' worth of tools and

material, and a fair share of self-assurance. Almost every one in the past did, as too many now do, neglect their preliminary education as something not needful for a successful dentist's career, while the fact is, the higher we rise in culture and refinement, the more our lives and the world must become to us. It is the small-minded men, the petty thinkers, who are finding fault with fate and quarreling with the competitors, while our great minds go on seeing great things.

Good and bad luck, too, is little else than good and bad training; it is, as a rule, quickness of mind versus ignorance. Men embrace their chances because they have education sufficiently to see them. One sees how he can supply the dental needs of a patient by doing artistic bridge-work, and pockets a large fee, another applies the forceps, and follows with a \$5.00 set of artificial teeth—perception versus blindness. Not one in fifty of our fraternity are students in the sense I would have them.

The systematic use of our reason, as developed by early habits of study, must be added to mere finger-craft if we are to be considered educated dentists. We do not expect a student to make a gold crown on an incisor root unless he has exercised his mind in observing the connection of ideas, and following them in train, sees the results before he has begun, is shocked by the incongruity, and chooses a less objectionable way.

We admire the leg-motion of the dancing-master, and the finger-motion of the musician. The incredible and astonishing actions of the rope-dancer or tumbler are almost beyond the conception of unpracticed spectators, yet these are nothing but the mere effects of use and industry in men whose bodies have nothing peculiar in them from those of the amazed lookers-on. As it is in the body so it is in the mind. The difference so observable in men's understandings do not arise so much from natural faculties as acquired habits of use.

This, in a broad sense, is education. An educated man is one with mind trained to methodical thinking, and whose memory is a magazine of facts.

The school is the mental training ground, and books the sources of supply for his memory. It is estimated that a com-

mon school education adds 50 per cent. to the productive power of the laborer, an academic education from 200 to 300 percent.

At this to-be-memorable Tri-State Meeting, illustrations are met at every turn in the trained faculties and polished manners of the educated men we meet.

What wonder if there is lack of sympathy between such, and the "hewers of wood and drawers of water," in the profession?

Grant that we are but mechanics, and the advantages of education to mechanical skill may be illustrated by reference to Natt, Cartwright, Whitney and Fulton.

If Stephenson and Edison seem exceptions, we point you only to their hard work in self-education, and still claim that all the great steps have been taken by trained thinkers.

Dr. Hartman is also right in urging this question from the point of citizenship. Ever since our ambitious and egotistical forefathers formally declared: "We are a specialty in medicine," the obligation has been on every admirer of the code to make himself a medical man. How many have succeeded, let every one answer to his own conscience. While many have hoped to share medical honors by this flimsy feat "we are," the fact remains that before the courts and in the public mind, we are not. Then let us get all the credit we can as skilled dentists, by being what we wish to seem. Most of our enjoyment, however, will continue to come from the confidential and social positions accorded us by the citizen friends of the commonwealth in which we live.

There are evidences in our current literature that some are beginning to take statesman-like views of our profession. This is a hopeful sign. Our position relative to other professions, to our confreres, our competitions, our patients, the public, and the privileges that duty to our family dependents and ourselves demanded, seem to afford vital topics, too little discussed, that our rank, history and biography as fit subjects for dental conventions.

Dental societies have accomplished much. The representative plan of the American Dental Association and its satellites has been wise. But times are changing, and there is some evidence

that the objects of organized support to the imaginary dignity of the elite. I will wait anxiously the time when dental societies shall be made attractive to the majority, and shall be the special agency for the supervision, extension and development of the profession as a whole.

Looking to the future of dentistry, the questions to-day most pertinent to its welfare are these: What are its younger members believing, and what are they doing? If it be true that the educators of to-day are making sentiment for the future, as educators of the past have influenced us. I am sorry Dr. Hartman has not considered the effect of the dentist on his profession, and among his people, who, in the interest of dental colleges, lobbys through State legislation, or who tries to place an embargo on the dentist of the poor; or who on examining boards, passes out questions he cannot answer, yet upon which applicants must be marked, or who, as college manager, plays a confidence game with innocent seekers after dental instructions, and who solicits clinical patients by the same method, and in the same spirit, which he declares unethical in individual practice.

DR. J. TAFT, Cincinnati: During the reading of the paper and the remarks of Dr. Walton, I was impressed with the thought that more attention to such subjects as this would be given by those who are teachers, and who have influence on those who are coming into the profession in the future. We should endeavor to stimulate young men on this line. It is a good thing for them to appreciate that there is something more to be done by the dentist than the mere hum-drum work of his office. The broader his intelligence, the more power he will exercise over his fellow-men. We find that illustrated in the medical profession. I fear that our educational institutions are not exercising all the influence they should in this direction of stimulating young men to broader views than they possess when they come from the colleges. Occasionally we find a young man well educated, and he goes out under vastly more suspicious circumstances than the young man who is crowded into the narrow groove of mere routine professional work. Though he may understand all the branches of the curriculum so that as he is able to pass them, there is still a broader range

of knowledge that he ought to have, and that would help him greatly in his special work. This range includes the progress that is being made in the various departments of science, theoretical and applied. Electricity is an illustration of this, and hundreds of other things illustrate it as well. Of course no one man can understand everything. But it is well that there should be a broad view of all these general subjects of the times so far as possible. Last night we had an interesting presentation of the subject of bacteriology by Dr. Barrett. How many of us understand that subject as we ought? So we should have more knowledge of all the range of subjects that come within our purview, and then we shall better understand the causes of things, and do better work, than if we are simply crowded down to the narrow space of the every day technical and operative duties of our profession.

W. C. BARRETT: This subject touches me at a very tender point. The influence that each one exerts cannot be estimated. The key-note that is set at the commencement of a dental meeting will vibrate through every session. The influence of leading men, like Chapin A. Harris, like Bond, and others to whom I might refer, not to speak of some of our venerable friends here present, has always been a powerful agent for the elevation of the profession. It is the duty of every dentist to feel that he is living in the eyes of the world; that he is the representative of a formative profession. At this time it is blossoming out, the calyx is opening, and we live in the hope that hereafter the fruit shall ripen for the harvest. Dentists sometimes forget this. We are not living here simply for the amount of money we can make. The man who devotes himself entirely to money-grubbing is not the man who gets the most out of life. My life has not been an unhappy one, though I cannot say it has been particularly a success. The reason why I have been measurably happy, is because I have been a hard working man, have been busy every day; I can get my recreation out of my labor. The days frequently are not long enough for me. My heart is in my work, and I am determined it shall remain there, and hence I can get some enjoyment out of it.

There is not an individual so humble that he does not attune

some other heart. The violin lay upon the piano, across which the master's hand was sweeping. I took up the violin to remove it, and found it throbbing, pulsating, vibrating in my hand like a thing of life; all resonant with the harmony derived from its contact with the piano. So the very contact with an active mind makes our own hearts sing with joy, makes them vibrate with all the activities of life. And when we put our minds in concord with others, when our intellects are attuned to the same key-note, when our hearts vibrate in harmony with them, how much we can do for the benefit of our fellows.

JOSEPH LATHROP, of Detroit, read a poem, entitled "Fraternal Love," written by Dr. J. A. Robinson, a practitioner of sixty years, the poem being dedicated to the Tri-State Meeting.

EDITORIAL.

Alabama State Dental Association.

The twenty-seventh annual meeting of this Association will be held at the Hotel Albert, Selma, Ala., April 14th to 17th, 1896. A very interesting and attractive programme has been prepared which embraces a number of important subjects that will doubtless be ably presented in papers and by discussion. It is to be hoped that all the members of the Association will be present, and a cordial invitation is extended to all practitioners in good standing in the State to be present, and it is earnestly desired that, so far as is practicable, all such will become members and assist in making the Association more efficient than ever in furthering the interests of the profession. A cordial invitation is also extended to the members of the profession outside of the State. Such are always welcome, and invariably add to the interest of the occasion.

The third day will be devoted to clinics and the more practical professional matters. The usual reductions by railroads and hotels have been procured.

The State Board of Dental Examiners will meet at the same time and place as the Association. It is very desirable that all who are especially interested in this meeting of the Board will be present, and thereby place themselves in a correct, legal position.

The Editorial "We."

An exchange says: Somebody who wants to explain what the editorial "we" signifies says the meaning varies to suit the circumstances. For instance, when you read "that we expect our wife home to-day," "we" refers to the editor; when it is "we are a little late with our work," it includes the whole office force, even the devil and towel; "if we are having a boom," the town is meant; "we received over 700,000 immigrants last year," and it embraces the nation, but "we have hog cholera in our midst," only refers to the illness of the man who takes the journal two or three years without paying for it.

American Medical Association—Dental Section.

The annual meeting of this body will be held at Atlanta, Ga., May 5-8, 1896. Preparations have been made which will insure a good meeting. The Section on Dental and Oral Surgery promises to be of unusual interest, and it is expected that a larger number than usual will be in attendance. We here give the titles of a portion of the papers that will be presented on that occasion:

Chairman's Address, R. R. Andrews, Cambridge, Mass.

"A Few of the Causes of Failures in the Dental and Medical Professions," B. B. Smith, Pensacola, Fla.

"Modern Methods of Treating the Antrum of Highmore," W. Xavier Sudduth, Chicago, Ills.

"The Teeth in Diagnosis," M. H. Fletcher, Cincinnati, O.

"Pyorrhœa Alveolaris," Eugene S. Talbot, Chicago, Ills.

Bibliographical.

CATCHING'S COMPENDIUM OF PRACTICAL DENTISTRY FOR 1895. By B. H. Catching, D.D.S., editor and publisher, Atlanta, Ga.

This very valuable work for 1895 has just come to hand, and is quite an improvement over the former editions. The subjects are so arranged and systematized as to be easily found. The work is one of great value, as its aim has been, and this has been quite fully accomplished by placing here in accessible form the very pith and marrow of the journalistic literature of this and other countries. While, perhaps, the leading object has been to give matters pertaining more particularly to the practical side of our profession, yet its principles and science have not been overlooked. In the production of this work Dr. Catching has performed a great service for the busy practitioner, and not only this, but it will be a work of ready reference for the college student and, may we say it, for the professor as well. Dr. Catching is entitled to the thanks of the entire dental fraternity for the accomplishment of this work. It should be in the hands of every dentist and every dental student in this country, and also in other countries, especially where the English language is spoken. As Dr. Catching goes on from year to year in this work he becomes better and better fitted for it; learns more and more just what is adapted to the needs of the profession, and, although it is difficult to conceive how improvements could be made on this edition of 1895, yet there is no question but that Dr. Catching, having the subject constantly in mind, will, from year to year, make further improvements.

DENTAL CHEMISTRY AND METALLURGY. Fourth Edition, revised and enlarged, with many illustrations. By Clifford Mitchell, A.M., M.D.

The popularity and value of this work is shown by the call for the successive editions. The work has been much enlarged,

more than one hundred new pages have been added embracing some very important matter, among which is Physiological Chemistry as it pertains to digestion. Much attention is also given in this edition to the germ theory, ptomaines, lucomains and various toxins, and considerable matter in the way of experimental chemistry, both organic and inorganic, has been added.

The work is well adapted for dental college classes and especially for those not connected with medical colleges or universities. The work is eminently practical throughout and will be of great value to the practitioner as well as the student. It should be found in the library of every dentist. It is published by the W. T. Keener Co., of Chicago, and is well gotten up in every respect.

Obituary.

DR. R. H. WILSON died, after several weeks of lingering illness, of la grippe, at his home on Chestnut street, Louisville, Ky., on Sunday, March 22, 1896. He came to Louisville more than forty years ago, in his young manhood, and conducted a very lucrative practice. He reared a family of sons, two or three of whom graduated in dentistry. He materially assisted many other young men in the details of mechanical dentistry, in which he was counted to be an expert and master. He was a helpful, obliging man, always ready to do a brother dentist any service he might need. In the department of mechanical work for the past fifty years, Dr. Wilson did more than any one who has practiced in Louisville. He had not the advantages of early and careful education, but his manly heart to do the best and a conscience that was void of offence gave him a wide circle of friends, who now mourn his loss. By his integrity, uprightness and Christian life, he was esteemed as a valuable citizen, as was shown by the gathering of aged people who thronged his funeral obsequies. At the ripe age of seventy-two, full of good deeds, beloved by friends and interesting children of mature age, Dr. R. H. Wilson passes away into rest.

W. F. M.

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COMMUNICATIONS.

Ethics.

BY S. B. BROWN, D D S., FT. WAYNE, IND.

To the Students of the American Dental Colleges :

It is an esteemed privilege to offer congratulations to the dental students of America upon their wisdom in electing to become dentists.

No other department of human endeavor offers greater fields for usefulness or greater reward to the faithful.

It is a source of gratification with our profession at large to note the advanced methods of teaching, and the higher intellectual standard of our pupils to receive it.

The increasing number of dental colleges, with their multiplicity of graduates, make evident the fact of increasing demand.

If this be true under existing conditions, where a surprisingly small percent of our population seek the services of a dentist save for the extraction of teeth, what would be the demand if all students could be effectually educated and conscientiously impressed with their sacred duty to their profession and the world, which eschews the extraction of teeth and uncompromisingly strives to preserve them?

A paramount question which should be discussed before the humblest and highest dental society is, " Why do Dentists Extract Teeth ? "

Why do those who have faithfully passed through the curriculum of a dental college, and perchance made sacrifices of time and money, oftentimes drawing upon the resources of family

and friends to acquire a full knowledge of the diseases which human teeth are heir to, and treatment for their restoration, for a careful study of the Divine Architect's infinite wisdom in their development for the physical perfection of creatures made in His own image? Why do they stultify the good name of dentistry by an assault to annihilate these priceless organs with forceps, and at the same time casting away that dearly acquired education for their preservation and any reputation which their profession is presumed to have as conservators?

Can any one dispute the importance and profit of a serious consideration of this question?

Does it occur to some of my listeners to ask, Is this subject pertinent to ethics?

The reply to such a suggestion is, that from long observation and study of the subject, extracting teeth, as practiced by many dentists, is an evil which is synonymous with devil, and is a veritable satan stalking abroad in our profession seeking whom he may beguile.

This temper has perverted a normal sense of justice and honor and so dwarfed self-respect, when yielded to, that nefarious methods are adopted for supposed gains.

These methods are the sandy foundations upon which to build the practice of the "advertising dentist." Printer's ink, gas bag and hypodermic needle are his chief material accessories, with these he decoys the ignorant, innocent and unwary to his selfish, conscienceless course.

Whatever else his "dental dodgers" may claim for him in skill is secondary to "cheap, painless extracting."

By these unethical and misleading methods the advertiser invades a community, and aims to prejudice public opinion against regularly educated, reputable and established dentists as extortioners and incompetents, and by his guerrilla methods is willing to traffic in the good name of a profession from whose store-house of lore he has drawn all that gives him a name which he now dishonors by his treachery.

He is willing to influence citizens to the belief that other dentists who are united and mindful of professional courtesy are

a combination for the purpose of extorting unjustifiable fees—that dentistry is a trade and not a profession—that dental skill is over-paid and does not deserve the reward attending conscientious labor for years to establish, and to which he would be cordially invited to share if he would add his mite to maintain that confidence and respect due an honorable profession in which he claims a brotherhood, and more to render a duty to humanity by a higher standard of skill in demonstrating professional truths—to educate and encourage the people to seek for their benefit the grand possibilities of modern dentistry.

In this light who will say his methods are not false?

The fallacious defense of the quack is that the established and regularly accepted plan for securing a practice is too slow, that he is too enterprising to wait, or his pecuniary necessities forbid it.

Thus he is willing to lower the standard of benefits to all others for his supposed individual gain, to subordinate every other high purpose to his selfish end.

Are not ethical questions involved in this course?

The next vain effort to vindicate a weak and wicked course is that the people will not accept treatment necessary for the conservation of diseased teeth, that they demand unconditional extraction; if one does not comply another will, therefore, it is justifiable to secure the profit of this ill-advised procedure.

“The people demand it.” Do we admit that we should take our professional orders from those who are totally ignorant of the first principles in what many years have been spent by us in acquiring to become competent authority in regard to the proper treatment? Is it to count as nothing? Is this diploma won only for a license to conduct a dental slaughterhouse?

Shall our patients dominate our course of treatment against our knowledge of right?

Oh! dentistry, what sins are committed in thy name.

Webster defines ethics as the science of human duty, a duty incumbent upon all to respect the rights of others in their daily intercourse, to subordinate individual interests to the common good. This is essential to all advance in civilization and social

evolution, and doubly true in advancing proficiency in our profession.

It is assumed in the professions that individual learning and social culture has its highest representatives, and when one falls below the ethical standard his degradation is strikingly apparent.

From our vantage ground moral impulses to just acts should take us far beyond the need of admonition of a written code of ethics as it does beyond the need of statutes against larceny and malicious trespass, these offenses having no parallel with the broken spirit of the unwritten code of ethics. I quote them for your comparison.

GRAND LARCENY.

Whoever feloniously steals, takes and carries, leads or drives away the personal goods of another, of the value of twenty-five dollars or upward, is guilty of grand larceny, and, upon conviction thereof, shall be imprisoned in the State prison not more than fourteen years nor less than one year, fined not exceeding double the value of the goods stolen, and disfranchised and rendered incapable of holding any office of trust or profit for any determined period.

PETIT LARCENY.

Whoever shall feloniously steal, take and carry, lead or drive away the personal goods of another of the value of any sum less than twenty-five dollars is guilty of petit larceny, and upon conviction thereof shall be imprisoned in the State prison not more than three years nor less than one year, fined in any sum not exceeding five hundred dollars, and disfranchised and rendered incapable of holding any office of trust or profit for any determined period, or he may be imprisoned in the county jail not more than one year, and be fined in any sum not exceeding five hundred dollars and disfranchised and rendered incapable of holding any office of trust or profit for any determined period.

Upon a second conviction of petit larceny, the person convicted shall suffer the punishment prescribed for those convicted of grand larceny.

MALICIOUS TRESPASS.

Whoever maliciously or mischievously injures or causes to be injured any property of another or any public property is guilty of malicious trespass, and upon conviction thereof shall be fined not more than twofold value of the damage done, to which may be added imprisonment in the county jail for not more than twelve months.

The question is submitted, Is not the invasion of the advertising dentist into any community a greater offense than the committal of crimes here quoted, and made punishable by fines and imprisonment? The larceny of twenty-five dollars has no part in comparison with the wrong perpetrated by the class here held in view.

One who has become sufficiently degraded to commit the least of these offenses whereby imprisonment is a possible penalty would be marked as unworthy of confidence in moral rectitude, likewise he who subordinates moral principle to base avaricious desires, as in the methods of the "advertising dentist," so weakens his better perceptions that moral turpitude stain his life—a fallen man, fallen below the ethical law of plain human duty. Where ethical law ends, common law begins. Is he who ignores the former safe in standing just beyond the grasp of the law for recognized wrongdoers—only on the borderland of outlawry?

Benjamin Kidd declares that "one who brushes aside the restraints of moral principle is little more than a highwayman at heart."

Individual interests can not progress to their best development without subordination to the best interest of humanity. "As well might we argue that because the fruit survives for a time when removed from the tree, and even mellows and ripens, that it was therefore independent of the tree." "Only by generating that great fund of altruistic feeling can all people be ultimately brought into the rivalry of life on conditions of equality." Nothing short of a weakened moral perception can be attributed to those who parade their claims for superiority and cheap operations in the advertising press. A newspaper advertisement of more than your name and location is superfluous.

Your sign and a standing professional card is all that can be of substantial aid. Intelligent persons seeking the services of a dentist are more diligent than you may suppose in gaining information of your character, and are not influenced in your favor by paid-for and self-dictated compliments.

In your office alone can you make the reputation which is desirable and permanent. Only here, by your good works, can you spread your fame through well-pleased patients, who will be glad to advertise and recommend you from their hearts.

Fees commensurate with the time and skill involved in your labor must be demanded. To ask less is sure to lower your standard of excellence. Such has been the progress in the science of human duty and endeavor that a new era is rapidly dawning upon us. We are rapidly rising above the requirements of self-imposed restraints in a written law of ethics, as we are above the State criminal code. The unwritten law of ethics, the limits of which include the Golden Rule, is our only guide and security. When we recognize this we will be as far above any personal concern for the written code of ethics as we now are above the State criminal law, and will regard violation equally repugnant.

All who are ordinarily observant must recognize the fact that we are now living in what may be termed an awakening era. A greater force of thought as to how we can better live is coming to us. The best and purest minds of this age are making a searching analysis of the great questions of life—of time and eternity, mortality and immortality. These scientists concur in the belief that we are nearing a pause in the material side of life—that art and invention which has made such marvelous strides in the last half of our century is now yielding, in harmony with a law of alternation, to the metaphysical or spiritual questions concerning man.

From a sense of duty I call your attention to this subject and ask that it may become a part of your inquiry and study. By so doing you will find an answer to many problems in life. You will find that earth should not be the battle-ground for brother against brother to gain subsistence. This study can alone reveal

to you the real ethical law, and make it a rule of faith and practice.

The essential and supreme gifts which make up a perfect man is given by Drummond as follows: "Patience, kindness, generosity, courtesy, unselfishness, guilelessness, sincerity, humanity, good temper." When we consider that these attributes are essential to perfect manhood, how fragmentary must be our claims. Still, we must not despair, as the first named is patience.

I pass to the last, and ask you as dentists to acquire it. A good temper cannot be overestimated. It is so easy to become exasperated when everything is not as we wish it to be. In our juvenile days anger was our first demand to stimulate us to a supposed proper resentment of all aggressions. Our associates encouraged and applauded it until it grew with our growth, and after we attained to the age of better judgment our philosophy is too often unequal to its subjugation.

Anger is our besetting sin, a relic of barbarism, purely animal.

A hot temper is the expression of an unenlightened selfishness which tolerates only "my way" and has no consideration for your way. "It is never justifiable in an intelligent person; it is an original sin attended in the past with all the cruelties of wars' tortures and inquisitions, an inheritance from savagery and utterly inconsistent with civilization or intelligence."

Under its force reason yields. Rage is momentary insanity. It is a passion which intellectual cultivation should disown. Humanity is defined as kindness and benevolence. The human tongue, when unrestrained by it, is an evil greater than alcoholic intemperance, in pernicious gossip and generally disparaging remarks.

We can say in sixty seconds what many years of vain regret will fail to obliterate—inject a poison past all healing. Drummond writes that "God has stowed away a vast amount of enjoyment in the deeds we never do, and the words we never say."

The exactions of polite society impose what may be expressed as rules of propriety, and is known as etiquette. Etiquette as concerns us professionally in regard to our initiatory intercourse

with our fellow practitioner is the reverse of general society's rule, in that the newcomer makes the first call upon reputable resident dentists of the place in which he elects to locate, informing them of his intention of becoming a resident and expressing his desire to be in ethical relations, when courtesies due will follow.

I rejoice at the presence of women in our ranks; they will be a potent factor in this great reformation; with their intuition of right, keen perception and delicate impulses they are certain to become barriers to all degrading deviations and lead in that refinement for which we must all aim.

In conclusion, I can sincerely give you every encouragement as prospective dentists; there is room and reward for the expansion of every noble ambition. When you enter the dental mansion, bring to the household no disorder, and by your aid we will enter upon the new century just dawning, fortified to lead the lives which infinite justice demands.

The Literary Side of our Profession.

BY DR. WM. H. STEELE, FOREST CITY, IOWA.

Read before the Iowa State Dental Society at Marshalltown, May, 1896.

Mr. President and Gentlemen:

In every department of life there was a time when a young man was only educated in those branches which were absolutely necessary for him in the sphere in which he lived, or for the occupation or profession which he expected to follow through life. Those who had but little education themselves knew but little of its advantages or importance, and, of course, considered all education not absolutely required for every-day use a needless luxury.

A young man was thus confined to the narrow limits of his own immediate duties, and seldom had the means, opportunity or ambition to break away from this beaten path and rise to higher and broader fields of usefulness.

This was true of dentistry in its earlier days; young men only acquired sufficient knowledge of the business to enable them to practice it in a mechanical sort of a way. Some who were mechanical geniuses became skillful manipulators, but the larger number never rose above the rote method taught them by their preceptors, and had no higher aspirations. But this has materially changed. The almost universal education of children in our public schools lays the foundation of a desire to study, so that, now, with our myriads of good, low-priced literature and numerous public libraries but few come to maturity without a good stock of general knowledge, and it is to one's own discredit if he allow his literary talents to fossilize at this point in life.

When a young man enters upon active practice he should make it a fixed habit to continue his course of reading, but sad to say, with too many of us, all literary work is cut off short, right where active business life begins. How true and full of wisdom are the words of Lord Bacon: "Reading makes the full man; speaking makes the ready man, and writing makes the exact man." The first and last of these are full of wise instruction to the dentist, but we are compelled to confess among ourselves that these duties are shamefully neglected by a large majority of our profession.

The young man usually starts out with good resolves, and reads systematically until his professional duties or other business matters begin to encroach upon his reading hour, then he finds plenty of plausible excuses for its neglect; gradually his taste and fondness for reading is lost and the work becomes irksome. He may take occasional spurts and read up on some case in practice, but, sad to say, even that ceases; he drops into the "back number rut," and instead of the "full man," he becomes lean and rusty in all that is new in dental literature. Ask him now to write a paper for the society or an article for the journal and he will reply: "I can't write, I have enough ideas but cannot express them on paper." Quite true; neither can a good crop be produced from an uncultivated field. Reading is the great cultivator of the human mind which prepares it for literary production.

It is impossible for any one to be a good writer without being a reader, and one who is a systematic and thorough reader only requires *practice* to become a writer. We would like to emphasize the third part of Lord Bacon's saying: "Writing makes the exact man," and it can be easily shown why. When one goes about writing on any subject he first makes some arrangement in his own mind. We call this getting out the frame timber, and it must be done with care and exactness in order to make a complete structure, and if the subject is of importance the more pains will be taken in its preparation.

Whilst arranging his thoughts he will be trying to inform himself, for now he begins to see that he don't know as much as he thought he did. The dentist will go to his books or among his file of dusty journals, having an indistinct recollection of something there that has a bearing on the subject; begins to cull a thought here and there and discards a preconceived notion for something better. All this is cultivating the mind and good training, for he is learning to discriminate and is gathering up facts enough to amply repay him for all time and labor. His writing is intended for publication, or to be read at the society meeting and must stand the test of criticism. He is fully aware that that test is a severe one and that no loose or random thought must find expression; every position must be fortified and protected; every declaration must admit of verification and the result is the utmost exactness of which he is capable. The writer is benefited whether a new thought is advanced or not, and the mental training is profitable to himself whether it is to any one else or not. Whilst exactness of thought in our profession is to be sought after it should not end with the person himself, as an unborn thought is of but little good to the world; the reader and thinker should cultivate the faculty of arranging and imparting his thoughts to others who are to come after him. How often in our travels, or at society meetings we have met men of twenty or thirty years practice who are fine operators, have inventive talent and are highly instructive in private conversation yet can not write a readable article. They have never been trained in that school of exactness which comes of writing, and the benefits of a long life of experience must be lost to the profession.

Our dental journals offer good training ground for the young writer, and every young practitioner should avail himself of the advantages offered (for unless we begin writing when young, unfortunately we will not take to it when old), and contribute one or two articles a year upon some favorite subject which he is willing to take the time to investigate. As before said, he will be well compensated for his time and labor. To be *sure* he may have one or two of his first articles returned or thrown into the waste basket, but this should not discourage further efforts, and should only stimulate him to renewed and increased exertion.

When a man makes up his mind to write, his professional life assumes a new phase; the dogged tread-mill of every-day sameness is gone; he has something to think of while pursuing his daily routine; he takes a new interest in looking for new features; his powers of observation and classification are receiving cultivation and his mind will grow and expand like a well-watered plant in the summer sunshine—a reflex action of the framing and building process illustrating the old proverb, “It is more blessed to give than to receive.”

Many who are located in small country towns think they can not furnish a creditable paper or worthy clinic for their society because they live in a small place and do not have the advantages of their brothers who live in the cities. We believe in the old adage, “Necessity is the mother of invention,” and originality, if encouraged in its development, is to be found in the country more than elsewhere, as the country dentist is thrown more upon his own resources and has to think and act for himself in all sorts of emergencies.

Now, when you go home slip a little note-book into your vest pocket, sharpen up your pencils and begin your notes upon some subject that suits you; add a stick of timber here and there as you find it to the frame until the skeleton is complete; then clothe it from time to time as you have the leisure, and next year, when some member of the executive committee writes you for a paper, don't reply, “I can't write”—it is too lame an excuse; every one has some good thoughts that stagnate for want of expression, for, as the poet says: “Thoughts shut up, want air, and spoil like bales unopened to the sun.”

The Good and the Objectionable Qualities of Oxyphosphate of Zinc as a Filling Material.

BY C. A. QUACKENBUSH, U. OF M.

That we may be able to judge of the properties of a substance it is well to know what elements enter into its composition and under what conditions its formation is brought about.

Oxyphosphate of zinc contains three elements: oxygen, phosphorus and zinc. The chemical formula of a filling made of this material is $\text{ZN}(\text{PO}_3)_2$. It is the salt which results from the reaction of a solution of metaphosphoric, or glacial phosphoric acid on oxide of zinc. The reaction is as follows: $2 \text{HPO}_3 + \text{ZNO} = \text{ZN}(\text{PO}_3)_2 + 2 \text{H}_2\text{O}$. So that when a cavity is filled with oxyphosphate it is filled with a material which is at the moment in process of formation.

Now, in what degree does this new substance which is formed possess the qualities of an ideal filling material? We can best draw our conclusions as to the value of a material for filling teeth by determining how far it possesses those properties that must, to a greater or lesser extent, characterize every material used for that purpose. They are in order of preference: 1, indestructibility; 2, adaptability; 3, hardness; 4, cohesion; 5, non-conductivity; 6, tenacity; 7, color; and 8, the quality of being a non-irritant.

In discussing oxyphosphate we will notice that it partakes of some of those properties in a marked degree, while in others it is equally deficient.

Oxyphosphate is of all the materials used for permanent work the most destructible, unless we except oxychloride. It will withstand the assaults of neither chemical nor mechanical agents that are almost constantly at work in the mouth, and to which every exposed filling material is subjected for any considerable length of time—hardly long enough, indeed, to merit the name of permanent work, although it is often used for that purpose. The average life of a phosphate filling is from one to three years. In rare instances they have been known to have remained

in good condition from ten to twenty years, while in many mouths they disintegrate in a few weeks or months.

In its adaptability it is almost, or quite, ideal. It can be readily and easily inserted into any cavity and does not require much, if any, retaining form to hold in position. For contouring, however, it is not very desirable, as it sets very rapidly, and contours made with it would be easily broken away. For filling under cuts where it is difficult to place gold properly, and where we do not wish to cut away more tooth substance in order to obliterate the undercut the phosphate is convenient and serviceable.

As to hardness, phosphate is far from being what it should be. In most cases it is soon worn away considerably in the process of mastication.

Its cohesive quality again places it in the front rank as a filling material. It is readily wrought into a solid mass. All of the particles cohere.

As a non-conductor of heat and cold it more than equals any of the other materials. And it is mainly this property, together with its cheapness and ease of adaptation, that gives to oxyphosphate its value as a filling material. Used as a foundation, especially with gold, it prevents largely the conduction of heat and cold to the pulp and protects it from irritation. It saves gold, saves time, saves labor and makes a cheaper and better filling than gold used alone.

It probably fails in tenacity as much as it excels in non-conductivity. It is easily chipped and broken away, which makes it objectionable where exposed to the occlusion of the teeth.

In its colors it attains nearer to perfection than any of the other plastics or of the metals, and is capable of being shaded by the addition of various substances, which perhaps do not aid in its durability.

In its non-irritant qualities it again excels. It is almost a non-irritant, owing to the phosphoric acid. On this account it is much more extensively used than oxychloride, which is irritant to a considerable degree.

To summarize : In its adaptability, cohesion, non-conductiv-

ity and non-irritant properties oxyphosphate is a good filling material. In its destructibility and lack of hardness and of tenacity it is not a good filling material. It has five good qualities to commend it, but is deficient in three important ones. Used in its place, it is one of the best of filling materials; but misused, it is one of the poorest.

What Difficulties Does the Dentist Encounter from the Presence of Secondary Formations?

BY E. F. DAY, L.D.S.

By the term "secondary formations" I have taken to mean:

1. Exostosis or enlargement of the cementum.
2. The formation of secondary dentine.
3. Calcareous degeneration of the pulp and formation of pulp stones.

The difficulties that a dentist would encounter from the presence of either of the above may be classified for the purpose of description under two heads, viz:

(a.) Difficulty of Diagnosis.

(b.) Difficulty in Treatment.

1. *Exostosis*.—The fact that we are unable to see the root of the tooth in this diseased condition, and that the symptoms are very vague, renders the diagnosis very troublesome. I am not aware of any diagnostic symptom which is characteristic of the disease or of any of the secondary formations, so that the inconvenience may vary from the dull, growing pain of an acute periostitic to the neuralgic pains following an exposed pulp.

Patients present themselves about the middle age, frequently with good sets of teeth, and complain of neuralgic pain around the teeth, face and head, which they can not locate. An examination will be made for caries, possibly there may be none. The question then arises, what is the cause of the neuralgia? And we must proceed to exclude all of the causes, such as a chill, the retarded eruption of third molars or any of the, may be, miss-

ing teeth, tumorous cysts, pregnancy and the like, but even by excluding these causes we cannot certainly say what the trouble is. Should, the patient be suffering from a rheumatic or gouty diathesis we may suspect exostosis. The treatment is almost as unsatisfactory as the foregoing diagnosis, and may be curative or radical. The radical treatment consists of extraction of the tooth or teeth, and in obstinate cases is the only course to insure cure. As curative measures, the application of counter irritants and the internal use of iodide of potassium is said to be good. As the deposit on the roots of teeth frequently enlarges the end of the root so much that it is larger than the crown, giving the tooth a dumbbell appearance, we find it very difficult to extract in these cases, and may have to resort to a large fissure by which we divide the alveolus after loosening up the tooth.

2. *Secondary Dentine*.—Since this secondary formation is of advantage to the individual as well as frequently necessary to the life of the pulp, we favor its progress as much as possible.

It sometimes happens that after a septum of secondary dentine has been formed the pulp dies, leaving this septum perfectly hard. The tooth presents itself for filling, and on excavating we find that there is no exposure of the pulp, and the walls are not softened above. In the earnest pursuit of our work we may have overlooked the fact that the tooth is not sensitive as many teeth we note, and we may have the mortification of filling over a dead pulp. This may not be a difficulty to all of us, but as I have had the misfortune to fill a tooth such as I have described, I thought it might be interesting to mention it. We all know that the application of a hot instrument or a piece of ice will clear up that difficulty.

3. And lastly, the calcareous degeneration of the pulp and formation of pulp stones.

When these conditions occur in old teeth it is a normal process, and since its diagnosis and treatment is of little value it requires no further comment.

But when pulp stones or nodules are formed in healthy teeth and at the same time we get an exposed pulp, and which we decide to kill in order to treat it, then the fun begins—I should say the difficulty begins.

We apply the arsenic and send the patient away for a day or two. Then we attempt to open up the pulp chamber (say, a molar) and after drilling for some time in that direction and no pulp chamber appearing (and as it was the first tooth of the kind I had treated) I began to think it was the queerest tooth I'd seen. On blowing the debris away I could see a small opening into the pulp chamber, or what was left of it, as I was now in the center of the tooth, and excepting this opening, all was calcified. I inserted a stiff bristle and by a lucky movement succeeded in dislodging the remaining part of the nodule which was blocking the way. Here I found the pulp so sensitive that I had to make another application of arsenic. On opening the tooth up again found other nodules in the canals. It seemed to be the delight of the pulp to get behind these nodules and defy my efforts to kill or extract it, simply asserting itself whenever my instrument (or hair tickler, as the patient called it) tried to grasp it. The tooth was eventually treated and fixed, in spite of the difficulties a dentist has to encounter due to the pressure of secondary formations.

Progressive Calcification.

BY JUNIUS E. CRAVENS, D.D.S.

Read before the Mississippi Valley Dental Society, April 16, 1895.

A pulp that can live without protection should be protected. Pulps that can not live without protection were better destroyed. This law was promulgated on the Mount of Olives nearly two thousand years ago, by one who said "Unto every one that hath shall be given, and he shall have abundance. But from him that hath not shall be taken away even that which he hath." It is the oldest of the laws—the survival of the fittest.

The irrepressible activity of the dental pulp as a builder should not be overlooked nor undervalued. The philosophy of Nature does not require that completed dentine shall be nour-

ished any more than that enamel shall be similarly favored. When in the process of development dentine has attained a maximum thickness or extent for practical purposes, regular activity of the odontoblasts is at an end; all subsequent activity of these elements is secondary and spasmodic, regional, responsive only to special excitation induced by irritation of external source. All secondary activity of odontoblasts results only in secondary deposits which are always irregular and erratic in structure; probably the nearest approach to regularity in these is the fact of lamination,* which merely shows eras of activity.

The form of secondary calcification most frequently met with is that known as secondary dentine, discoverable to some extent in canals and pulp chambers of most persons beyond maturity. Secondary dentine may be pretty evenly distributed over the walls of a pulp chamber, or confined to a particular section of the wall, or appear in the form of tumors or nodulations, more or less pedunculated, firmly attached to the cavity wall. The benefits and evils of secondary dentine are about evenly conferred and well mixed, i. e., neither is universal and absolute.

As already suggested, development of secondary dentine is due to specific irritation of external relation, consequently the greater formations occur on those parts of the wall of the pulp cavity nearest to or toward the source of irritation.

Activity of odontoblasts in secondary calcification may be manifested over a considerable portion of a pulp at once, provided the irritation were general, a condition most likely due to prevalence of extreme temperatures, or probable alternation of them. Whilst the odontoblasts are most actively engaged thus, the individual probably feels no discomfort, and the progress of deposition may be so slow as to require years before producing noticeable effect; on the contrary, very extensive secondary deposits may occur in a year or less time.

Secondary calcification is usually more rapid than regular dentinification. Secondary dentine often occupies nearly all the pulp chamber, causing the reduction of the pulp until it merely exists within the canal in the root.

In rare instances nodules of calcific matter are found in

canals ; this rarity is probably due to a lowering of vitality in the pulp and thus restricting activity of odontoblasts. There is another reason why odontoblasts within the root canals do not often resume spasmodic activity ; they are not subject to external influences to the same extent as those within the crown of the tooth ; naturally a root is protected and may be said to have no external relations other than physiological.

A pulp canal is subject to two constrictions, which may be called apical and coronal ; the first constriction to be considered here is the coronal, located at the point where the pulp enters the canal from the chamber ; the coronal constriction doubtless is the secondary one, for reasons which may appear farther on. The coronal or secondary constriction is related to practice in important degree ; every thorough operator has experienced difficulty in penetrating some canals, because of a spicula or plate of secondary dentine that projects itself over or across the entrance to the canal, sometimes quite closing it, or appearing to ; the removal of this obstruction often reveals a liberal canal beyond.

But the coronal constriction is not due to external irritation ; it comes in response to natural demand to meet an emergency. Whenever the dentine of the crown has attained maximum thickness for mechanical purposes of a tooth, strength and wear and tear, the activity of the odontoblasts must be reduced and finally stopped, and this only can be done by reducing or lowering the vitality of the pulp itself, enfeebling it but not destroying it. An external irritation may cause enough congestion of the pulp to stimulate renewed activity of the odontoblasts and support them imperfectly for a time, but this spasmodic effort receives only spasmodic support ; the supply of pabulum (building material) fluctuates with the wavering inflammation. Inflammation is high living, and, if extreme in a pulp, nutrition fails.

The coronal constriction may be developed so rapidly and extensively as to literally strangle the coronal portion of the pulp, and it dies.

There are other secondary deposits to be observed before reaching the apex of the root. Pulp nodules are oval or

rounded bodies frequently found in the substance of pulps, having no connection whatever with the wall of the cavity or any masses of secondary dentine. Doubtless the same character of irritation that stimulates development of secondary dentine also influences formation of independent nodules, but in the latter the odontoblasts have no part, unless possibly one becoming separated sinks into the substance of the pulp and becomes a nucleus around which accretion of lime salts occurs from the superabundance drawn to the pulp by mild irritation, and which the coronal constriction prevents being promptly returned to the general circulation. The process of nodulation within pulp tissue is analogous to that by which oysters construct pearls.

While nodules within canals are rarely discovered, the writer has had the good fortune to discover quite a number, in one instance three in a canal (of an inferior bicuspid). Some cut specimens of pulp nodules show beautiful laminations that evidently mark periods of activity and repose in the process of calcific deposition.

Going back again to the pulp chamber, from which we wandered in quest of pearls, let us penetrate the tubuli for farther discoveries of lime deposits. Under stress of certain conditions, the pulp fails to invest against encroachments by deposits within its cavity, but instead the embryoplastic filaments occupying the tubuli affected by an irritant permit or accomplish transmission of lime salts in solution, the filaments operating as osmotic tissue for transmission of fluid to the peripheral loops. The lime salts thus passing through the tubules are laid within the terminal sections of the filaments themselves as close to the irritant as possible, thus affecting a complete solidification of that section of dentine; this character of deposit is classed as Obstructive Calcification, and is in nearly every essential different from all other calcific deposits or formations in teeth. This obstructive action may occur solely in a group of tubuli that are directly affected by thermal changes from a metallic filling; this may be easily demonstrated by making a section of dentine along the tubes from a filling or even an unfilled cavity of long standing, the opacity of the affected tubes will be easily observed even by the unaided eye in most cases.

Obstructive calcification also prevails to a good degree in many cases, this being particularly so in senile abrasion, or any very slow process by which dentine is destroyed over living pulps. Thus we are enabled to account for the low sensibility often observed in the teeth of the aged. In all these obstructive measures nature acts solely on the defensive against outside influences; the pulp nodules alone being erratic calcification. Probably the order in which these secondary deposits might be anticipated in the same tooth would be, *first*, obstructive calcification; *second*, secondary dentine, and, *third*, pulp nodules.

There is no pulp dynamics capable of nourishing dentine solidified by obstructive calcification.

Penetrating the canal once more, we discover another interesting differentiation in secondary calcification known as canal casts; from their appearance these differ materially from every other secondary formation, although of the same constituency as those named; the casts are formed within canals in apparently the same manner as the nodules, but are long rod-like masses, and conforming closely to the walls of the canals has given the name canal casts. Some canal casts are quite solid, while others appear to be formed of fine crystals, like asbestos; occasionally one appears to be attached to the dentine, but it is seldom more than a close mechanical adaptation. As in case of the pulp nodules, so in the canal casts the odontoblasts have no interest.

It is supposed that the fibrous or spongy casts are so because of a rapid atrophy of the pulp and lowering or expiring vitality in that organ, brought about by cemental constriction of the apexal end of the canal—the primary constriction.

It is well—or ought to be—well known that the apex of a root tooth is always completed by cementum, if completed at all, and in this cemental tissue we have a continuance of the process of calcification that began with the appearance of stellate bodies in the enamel organ. The study of this subject is not finished until the process ends, which does not occur until the pulp is dead; even then it does not lose its significance, because the want of additional layers to lengthen the root in order to compensate for abrasion and to maintain articulation, makes the loss a doubtful advantage.

The histories of the dental pulp and progressive dental calcification are written in the same book and must be read together. Reading them thus brings us to the following conclusions :

First. Time enough being given, the pulp will inevitably destroy itself, or be obliterated by influences of progressive calcification.

Second. From the stage of completion of a tooth, the pulp labors toward self-destruction, by secondary deposits.

Third. After practical completion (articulation) of a tooth the tenure does not depend upon continued vitality of the pulp.

Fourth. While unnecessary destruction of pulps should be discouraged it is better to attain certainty of good results with pulpless canals than wrestle with disappointing after-effects of attempted conservation of live pulps.

Fifth. A pulp that can not live without protection should be protected ; pulps that can not survive without protection were better destroyed.

DISCUSSION.

PROF. TAFT : I believe that wherever there is living organic tissue it must be nourished. There is a portion of organic tissue in dental canals and there is a nutritive process going on. We frequently find that the teeth increase in density which may be due to a deposition of calcific material between the canals. Whether there is progressive increase in density as age progresses, is a question. Nutritive currents contain calcareous matter which becomes deposited on the walls of the canals, thus closing them up. Dentine under certain conditions and circumstances does exhibit an increasing density. The deposition of calcific matter upon the walls of the pulp-chamber is a provision of nature to resist both wear upon the occluding surfaces of the crowns and the encroachment of disease.

DR. A. W. HARLAN : Dr. Cravens' paper discusses itself. One or two conclusions are, I think, a little startling. He makes the statement that a pulp which can live without protection should be saved and one that can not live without protection should be protected. In cases of extreme mechanical abrasion

the pulp retreats, for the odontoblast is a progressive builder. If extensive gold cappings are put on the pulp frequently dies. Though I have not looked up the literature of the subject, I agree with the general trend of the paper. In these cases of extensive abrasions mentioned it is probably best in many instances to obliterate the pulp in order to conserve the integrity and color of the teeth. Subject passed.

A Suggestion on the Origin of some Cases of Pyorrhœa Alveolaris.

BY DR. H. C. MATLACK

Read before the Mississippi Valley Dental Society.

We sometimes find men who will hesitate to advance an opinion which has a direct medical bearing, thinking that to be dogmatic and self-assertive without due reason is illogical and unjustifiable—which presents the spread of some thought and the solution of some great question. The following will be presented for what it is worth. I will try to show that there are *some* cases of pyorrhœa alveolaris whose origin may be syphilitic.

On October 14, 1895, a lady 28 years of age presented herself for treatment on account of looseness of upper front teeth. The four upper incisors were found to be very loose, gums could be lifted from necks of teeth, pus exuding, and the general conditions present which caused a diagnosis of pyorrhœa alveolaris, although no calcareous deposit was found on these or any of the other teeth—pyorrhœa instruments being used to determine whether there was such a deposit or not. The lady has been a patient of mine for several years, so that any inclination to salivary calculus or other deposits due to carelessness in cleansing the teeth would have been noticed. About eighteen months ago this lady was married to a young man who was *supposed* to have recovered from a severe attack of syphilis. On questioning the patient, I found that in May, '95, she had a severe case of iritis, which, by the time she was referred to an oculist, had developed

into choroiditis. Now, from a number of authors, we find that choroiditis is a frequent disease in all ages, and the most ordinary cause is syphilis, both acquired and hereditary. Upon consulting a number of writers, we find that we have syphilitic iritis, choroiditis, deafness, otorrhœa, or a flow from the ear, syphilitic headache, produced by the virus irritating the membranes of the brain and pericranium; syphilitic complaints in the nose, originating from the immediate application of the virus to the nostrils; syphilitic sore-throat; syphilitic swelling of the bones, where may be traced one of the causes of exostosis of the teeth. The following, under the head of "Syphilitic Toothache," taken from a work published as early as 1801, shows that even then some diseases of the teeth were attributed to syphilis.

"The syphilitic virus, in affecting the eyes, the mucous membrane of the nose and throat sometimes attack the gums, producing syphilitic toothache, which must be carefully distinguished from that produced by mercury or mercurial odontalgia." Showing that attention was called to the difference between pyalism and some other affection of the gums, perhaps pyorrhœa. In order to substantiate the theory of syphilitic infection causing pyorrhœa alveolaris, we must find it affecting the *periosteum* as well as the bone itself. No portion of the body is exempt from the attacks of syphilis. Stanley has the following, which shows that there is such a thing as syphilitic periostitis: "Syphilis is a well-recognized cause of inflammation of the periosteum. Systems debilitated by mercury and other drugs are thus rendered particularly susceptible to the influence of cold and moisture, and inflammation of the periosteum of one, and oftentimes several, bones is of common occurrence. The reason of this is probably because the surfaces of the bones, superficially situated, are most exposed to external influences, that these are the usual seat of periostitis. Acute inflammation of the periosteum occasions increase of its vascularity—thickening and softening of its tissues—loosening of its connection with the bone—serous or purulent effusions between it and the bone."

Although it appears from a clinical history and pathological changes that the diseased action is marked at the extremities of

the long bones, where nutritive changes are the most active, it is not confined to the ends of the long bones, and does not manifest itself in the interior of those parts of the extremities of the bones which are not covered externally by the periosteum, which gives the conclusion that in the majority of cases the periosteum is the tissue *primarily* involved in the diseased action, the bone being implicated in consequence of the periosteal abnormalities frequently occurring either before or during the eruptive stages of primary syphilis. During these early stages, although the pericementum is affected at the time, the patient is unable to localize the pain, which may be similar to locating an aching tooth; but later on, when the eruptive period of the disease is developed, the gums become excessively tender on pressure. These conditions being present in the case cited caused a further consideration of the subject. By the kindness of Drs. Evans and Ravogli, the City Hospital was visited, and twenty-three syphilitic patients were examined, eleven having true pyorrhœa. Now, to counteract the thought that there were probably cases of ptyalism, the attending physicians stated that although a small amount mercury was used, no ptyalism had been produced in any case. The case referred to in the beginning was treated by the usual methods; three of the teeth responded readily to the treatment, but the upper right lateral was not cured the last time I saw the patient.

I had intended taking up another phase of the subject, that is, that some cases of pyorrhœa alveolaris may be of a tubercular origin; but, as this paper was intended to be a suggestion only, the further consideration of the *tubercular idea* will be postponed to some future date.

DISCUSSION.

PROF. W. H. KNIGHT: The essayist, Dr. Matlack, has presented an interesting subject, and one which shows the relations between medicine and dentistry, by demonstrating the need of constitutional treatment in addition to local.

Pyorrhœa alveolaris, although usually arising from local causes alone, is at times associated with and partly caused by

constitutional disturbances. Some of the specific and wasting diseases, by lowering the vitality of the tissues, render them much more vulnerable to the injurious effects of local irritants, so that a slight local cause—which acting upon the healthy parts—in possession of their normal resistance, would be inadequate to cause mischief, can do so under depressed or diseased condition of the parts. The hydra-headed disease to which the essayist has referred, can in some, although in rare instances, be a factor in the origin of a pyorrhœa alveolaris. Most authorities, among whom may be mentioned Bumstead and Hutchinson, agree that a syphilitic periostitis may be primary, that is, it may develop independently of any affection of the neighboring soft parts. Although it is the rule for syphilis to attack that part of the periosteum which covers compact bone, it is not at all surprising that this disease, which assumes so many phases, will in some rare instances invade the periosteum of the alveoli, and thus establish a pathological condition in this membrane which will make it exceedingly susceptible to the baneful influences of slight local irritation.

A case, in instance, occurred in a young man who some years ago consulted me in regard to an extremely offensive ozena. For some months previous to this he had been under the care of his dentist, suffering with pyorrhœa alveolaris accompanied with loosening of several of his teeth. Investigation of this patient revealed him to be a victim of congenital syphilis. He was placed upon constitutional treatment for the disease. His improvement was steady and continuous, the pyorrhœa alveolaris, which had resisted prolonged local treatment, disappeared, and the teeth became gradually tightened.

DR. FLETCHER: It is a matter of much interest to me to hear this paper and to know that some one has taken up the subject. As to the effects of syphilis as an exciting cause in cases of pyorrhœa alveolaris, I know very little, but can easily imagine it being one of the causes of this disease. I believe that pyorrhœa, as usually talked of, is considered to arise from a single cause, but, to me, there may be many causes, syphilis being one of these. Another cause mentioned by the essayist takes form

in my mind as being one which may be frequent, and that is tuberculosis.

My hypothesis about the matter would be after this manner: We know that the bacilli of tuberculosis (when the patient has become affected) have a tendency to form colonies in various tissues of the body, and especially the endothelial and epithelial membranes, such as the joints, the lungs and the mucous membrane of the air passages, and often in the skin, when it is called lupus; these tubercles are first invisible, when they are called granular, when a little larger they are called crude and then miliary tubercle; the last is so-called from its being about the size of a millet seed, and they may ultimately be much larger.

When the miliary size is reached, the tubercle may become caseous and then begin to break down in the center, not forming true pus, but a watery, milky fluid, just such a discharge as is often found in these pockets about the teeth. No doubt many of you have seen just this character of discharge from them. Now, the physical character of the two discharges being identical leads me to think that possibly many cases of pyorrhœa may be of tubercular origin. This could be determined by microscopical examination of the discharge, and I trust that the essayist, or some one else, may take up the subject from this standpoint and give us some facts and statistics relating to the tubercular origin, as well as the syphilitic or other cause of the disease.

A Suggestion.

BY L. P. BETHEL, D.D.S., M. D., KENT, OHIO.

Read before the Mississippi Valley Dental Society, Cincinnati, April, 1896.

The subject of instructing the public in dental matters has been discussed in our societies for years, and yet but little has been done toward enlightening the people.

We might continue to discuss this question until doomsday without greater benefit, unless some active steps are taken.

Many methods of imparting this information have been suggested, viz.: well-written articles in pamphlet form for patients, lectures to school-teachers and pupils, addition of subject matter to physiologies, publishing articles in the newspapers, etc., etc. .

No one method, however, as outlined, will reach the number of people desired. It seems to me that the most feasible means is through the press, and I will now suggest a new method of utilizing the newspapers to the greatest advantage.

Let the American Dental Association appoint a committee, one of which shall be made editor. The duties of this committee shall be, first, to correspond and arrange with the leading dailies in the United States, one only in each city, to publish one prepared article in the Sunday edition each week until a whole series is printed. The articles to go to the publishers thoroughly edited and ready for publication, and to be gratuitously given, providing an announcement be made each week in the daily advertising their Sunday issue calling attention to the forthcoming article.

I have assurance that this arrangement can be effected. The Sunday paper is suggested because it has a large circulation and is more generally and thoroughly read than the dailies, although the Saturday or Monday issue could be used if desired.

If this be accomplished, the next duty of the committee shall be to appoint prominent men in the profession to write a series of articles, in popular style, bearing on every phase of the subject in hand. Each person to write only one article, and that to contain not more than 1,000 or 1,500 words. When written, these articles should be sent to the committee to be edited and prepared for the press.

When set in type, proof will be sent to the author for revision. When corrected, enough copies will be printed from the galley to supply the papers secured. Proofs of each article to be sent publishers about one week in advance, and the article to appear simultaneously in the desired edition of all the papers, and this continued each week until the whole series is published.

There are about fifty available papers, and they reach fully 12,000,000 readers.

Then, if desired to further extend this knowledge, dentists in towns can get their home paper to republish the articles, without credit, and call special attention to them.

When set in type, the matter can be paged and stereotyped for pamphlet use, if thought advisable. The pamphlets furnished to dentists at cost, would be very cheap and enable them to supply their patients, and also teachers of the public schools that they may read them to the pupils in the school-room, and thus assist in imparting this knowledge.

The whole expense would not be great. If each State and local society would contribute a few dollars, aside from that given by the American Dental Association, there would be ample means to carry out the project in a thorough manner.

And who can estimate the benefit to millions of people and thousands of dentists.

DISCUSSION.

[This paper is the suggestion of a plan to publish in the daily press, throughout the United States, a series of articles upon dentistry in popular form. The object being the distribution of proper information among the masses of the newspaper-reading public.]—REP.

DR. J. E. CRAVENS: I think the best plan to reach the people is through the physician first. He comes in daily contact with the people, and much confidence is reposed in him.

DR. WRIGHT: I don't think it a very good plan to educate the people upon the subject of dentistry. In Europe I had full sway, my patient knew not what I was doing nor why; he simply submitted to the necessary manipulation and paid the bill. When I returned to America and resumed practice in Cincinnati, I found my patients discussing this, that and everything else relating to dentistry. They were familiar with anatomy, physiology, pathology, therapeutics and treatment, with methods and with filling materials, and when it came to criticising the bill, I heartily wished that so much and intimate knowledge had not been spread abroad.

DR. J. TAFT: I, on the other hand, greatly prefer to deal with the intelligent, educated patient than with the ignorant, that Dr. Wright prefers.

Subject passed.

The Bridge Case—Decision of the Court.

UNITED STATES CIRCUIT COURT, EASTERN DISTRICT OF NEW YORK.

INTERNATIONAL TOOTH CROWN CO.	} <i>In Equity.</i>
vs.	
ALLEN G. BENNETT.	

The bill alleges ownership by the plaintiff and infringement by the defendant of patent No. 238,940, dated March 15, 1881, and granted to James E. Low, for a method of permanently fixing artificial teeth to the mouth by bands around the natural teeth, in dentistry. The answer, among other things, denies knowledge, and prays strict proof of ownership; and sets up various anticipations.

At one place a certified copy forms the record of an assignment in the patent office was put in evidence taken on notice, but in absence of defendant's counsel. This is objected to now as insufficient. It would have been inadmissible on objection then; and perhaps have been suppressed on motion afterward (*American Cable Railway Co. vs. New York*, 60 Fed. Rep., 1016). But as it has been left as evidence in the case its inadmissibility has been waived; and on that waiver it seems to be sufficient.

The patent was before Wallace and Shipman, J. J., *International Tooth Crown Co. vs. Richmond*, in the Circuit Court for the District of Connecticut, 30 Fed. Rep., 775, and sustained. Of course everything decided there is to be considered as settled here.

The method is wholly mechanical, and is said now, in view of *Ridson vs. Medart*, 158 U. S., 68, decided since, not to be patentable; and defenses of prior knowledge and use by Doctor Day and by Doctor Beardsley, not before the court then, are relied upon now.

When the method, and not the operating parts, is what is invented, that, of course, is what is to be patented. Here the natural teeth belong to the wearer, and are to be operated upon; they are not made by the inventor to operate, and can not be brought within the patent. The bands were not new in any sense alone; nor were they when combined with the artificial teeth merely; but the mode of attaching the artificial to the natural teeth permanently by the bands might have been; and, if so, that was what was invented, and what should be patented.

This method is thus described in the specifications:

"A band of gold, or other suitable metal, is first prepared and accurately fitted around the tooth adjacent to the vacant spaces to be supplied with an artificial tooth. This band is firmly secured in place by cement, which effectually excludes water or the fluids of the mouth, and is thus permanently attached to the tooth, so that it can not be removed without an operation directly for that purpose. It is sometimes sufficient to prepare one of the adjacent teeth in this way; but generally it is desirable to prepare the adjacent teeth on each side of the vacant space. It will always be advisable to do so if the vacant place is to be occupied with more than one tooth.

"The formation of the mouth and the shapes and position of the teeth are so various with different individuals that my invention may require modification in various particulars in applying it. I, therefore, do not propose to limit myself to the details as shown, but consider that my invention includes the permanent attachment of artificial teeth by securing them to continuous bands permanently attached to adjoining teeth supported upon natural roots, and supporting said artificial teeth by said attachments without dependence upon the gum beneath said artificial teeth."

The claims are for:

"1. The herein described method of inserting and supporting artificial teeth, which consists in attaching said artificial teeth to continuous bands fitted and cemented to the adjoining permanent teeth, whereby said artificial teeth are supported by said permanent teeth without dependence upon the gum beneath.

“2. An artificial tooth cut away at the back, so as not to present any contact with the gum except along its front lower edge, and supported by rigid attachment to one or more adjoining permanent teeth, substantially as and for the purpose set forth.”

This method, as such, would be as well practiced and shown by the attachment in that way of one side of one tooth or one end of a block of teeth, to one natural tooth, as by so attaching each side of the single artificial tooth, or each side of the block to a natural tooth. The method of the attachment to a natural tooth is, by the terms of the patent, precisely the same. A band extending upward so as to form a cap over the natural tooth would be none the less a continuing band of the patent when used as such in carrying out this method. The alleged infringement was done only by such use of such cap. Doctor Day testified to soldering a silver cusp to a silver band making a cap, which was permanently attached to a natural tooth of a patient, and to which an artificial tooth was attached. This testimony is supported by that of an assistant learning the profession, that of an intimate acquaintance of the patient, and the production in evidence of the work, kept after long wear.

Doctor Beardsley testifies to making a similar cap of gold and attaching it to a natural tooth of a patient, wife of a clergyman, and to attaching at first an artificial tooth at one side of the cap, and afterward another on the other side, which were worn, and gave satisfaction, several years. In this he is corroborated by an assistant also learning the profession, and by the patient, her two daughters, and one of her Sunday-school scholars. There is nothing so improbable about this testimony which is left wholly undisputed as to leave any fair doubt as to the occurrences, or their date, both of which preceded Low's invention. The method of either seems to be the method of the patent, and either seems to well have anticipated it.

Let a decree be entered dismissing the bill.

JAMES C. CHAPIN,

HOYT H. WHEELER.

EDWIN H. BROWN,

For Plaintiff.

CHARLES K. F. OFFIELD,

For Defendant.

SELECTIONS.

Hygiene of the Face.

To a very large proportion of the human race in civilized countries the face is, under the designation of "the complexion," the subject of considerable and painstaking interest. Even those most exempt from vanity would prefer to have a physiognomy not readily identifiable by a more or less symmetrical crop of pimples; and a congested nose is not regarded as a thing of beauty, even in an omnibus driver. Yet, in spite of this general feeling in favor of a normal complexion, ignorance and carelessness between them wreak havoc, and it is the exception to meet with cheeks that have seen more than twenty summers which do not betray traces of ill-treatment. Apart from indigestion and constipation—two potent factors in the ruin of a naturally healthy complexion—there is a variety of forms of mismanagement which conduce to blotchiness and pimply deformities. Among them must be ranked the practice of washing the face with hot water, a widespread form of self-indulgence in cold weather. The hot water, especially when reinforced by a course of unduly alkaline soap, removes an unduly large proportion of the natural fat of the skin, leaving it with a roughened surface, which is very liable to excoriate or "chaf," and requires more frequent washing to keep it clean, owing to its catching the dust. Nothing, probably, does so much to age the skin as the frequently repeated ablutions with hot water, and this may explain why the dainty Frenchwoman prefers to smear off the grime with the corner of a handkerchief steeped in glycerine, knowing by experience that good, honest soap and water is, in the long run, detrimental to the preservation of a healthy skin.—*Charlotte Med. Journal.*

It is stated in the *Hospital* that the Medical Society of Berne is endeavoring to prevent the publication of notices of cases of suicide. It has been observed that suicides have been frequently suggested by these means.

The Sanitation of Work-Shops and Public Conveyances.

BY B. MERRILL RICKETTS, M.D., CINCINNATI.

Read before the Academy of Medicine of Cincinnati, March 16th, 1896.

It would require more time than allotted to do this most important subject justice, consequently but a few passing remarks can be indulged in at this time. The object, however, is to bring a few of the most important features before you for consideration :

WORK-SHOPS.

1. Kind—whether brick, wood, stone or metal.
2. Location.
3. Ventilation—natural or artificial.
4. Drinking accommodations—filter.
5. Bathing accommodations.
6. Water-closets.
7. Elevators and stairs.
8. Kind of heat—steam, hot air, water, stoves or open fires.
9. Light.
10. Number of square feet to persons.
11. Time to eat.
12. Where eaten.
13. Lounging-places.

All these have great bearing upon those so employed.

SLAUGHTER-HOUSES AND STOCK-MARKETS.

1. Should not be allowed to exist within the city limits.
2. The sewage from such places should be destroyed by fire or utilized for fertilization, and not allowed to add to the already dangerous contents of sewers.
3. No person under twenty-one years of age should be permitted to work in such places, and especially forbidden to witness the killing of animals.
4. The rendering of lard and tallow should also be prohibited within the corporate limits of a city, town or village.

MARBLE-SHOPS, FOUNDRIES, PLANING-MILLS, FURNITURE FACTORIES,

Or any other having dust should be given special consideration by the sanitarian. Ventilation, baths and lounging-places should be provided, and ample accommodations for changing clothing arranged.

RAG FACTORIES AND WAREHOUSES

Should also be excluded from within the confines of a city, town or village.

Rags, in any quantity, should be subjected to a heat sufficient to destroy any bacteria or parasite. Until such has been accomplished, no bundle of rags, from any locality, should be allowed to be opened or handled as merchandise. Such places should be well ventilated and subjected to the rays of the sun.

Persons under eighteen years of age should not be allowed employment in such places.

SOAP FACTORIES

Are not without their injurious effects, and should constantly be under the inspection of a strict sanitarian, who should forbid their presence in corporation limits.

MALTSTERS AND DISTILLERS

Should locate their factories in country places, and not in a densely populated district. The inhabitants of such places should not be subjected to the vitiated atmosphere as a result of fermentation in such places.

TILE FACTORIES

Should be excluded from the city limits. The law should forbid the employment of persons under eighteen years of age in these factories. They should be under the strictest sanitary regulations and inspected daily. The floors and work-tables should be kept moistened, so that the dust of lead and coloring matter might not infect the atmosphere.

All laborers in and about the place should be compelled to drink during the day a weak solution of sulphuric acid water, which should be kept in earthen jars in various parts of the factory.

Any person manifesting symptoms of lead-poisoning should not be allowed to return to the factory, at any time, to again resume his work.

WHITE LEAD AND PAINT FACTORIES

Should be placed in the same category as tile factories, and governed by the same conditions. The same might be said of brass and copper works and foundries.

MATCH FACTORIES

Have been given more consideration than the others, owing to the certain destruction of the lower jaw of those so employed, but they have not yet been excluded from the corporate limits of cities, towns and villages, which they should be.

BONE CRUSHERS (FERTILIZING ESTABLISHMENTS),

Should also come under the same regulations.

SHOE FACTORIES.

As a rule, these factories have better sanitary accommodations than any other. The nine thousand persons thus employed in this city have very good light, heat and ventilation, and sewer connections.

FURNITURE FACTORIES

Have poor accommodations for their employes, the ventilation and atmosphere being imperfect.

The wood and sand dust are about the worst elements to be found in the atmosphere (so far as solid matter is concerned).

Feathers, hair, shucks, wool and moss should be subjected to a heat sufficient to destroy anthrax, with other contagious, infectious and parasitic life.

CHILDREN

Should be kept in school and not allowed to become engaged at work in any kind of factory before eighteen years of age. It is cheaper, from a financial point of view, to keep them in school until that age than to care for them in alms-houses in declining years, as the result of not having had educational advantages in early life. Besides, one can never be compensated for the loss of a finger, hand, toe, foot or eye, or any of the disfigurements

incident to the life of a mechanic. This is especially so with girls. Many boys and girls are forced to adopt vocations entirely different to what they would have done, as a result of the deformity sustained.

The social relations of those so afflicted are more or less impaired. This is more marked with girls. The menstrual period is utterly disregarded, those of their own sex, in places of authority, apparently being the most disregarded. Every woman should seek and find mental and physical quietude and rest at the time of menstruation.

COOKS, DAIRYMEN, WAITERS AND BAKERS

Should be given special consideration; also nurses and those who are continually coming in close contact with people. Gonorrhœa, syphilis and tuberculosis are too common and too easily communicated to be utterly disregarded by the sanitarian. A weekly or monthly inspection by a competent physician might eliminate many of the dangers to which the innocent are subjected.

MONEY.

Money, both paper and coin, should, in the hands of certain persons, be subjected to a sufficient heat to destroy all bacteria and parasites. Banks and institutions handling large amounts should have a receptacle for this purpose. It would cost \$25.00, but would save many times that amount in preventing disease, loss of time and death, besides taxation for services rendered to such afflicted.

VEHICLES

Of all kinds, both public and private, should be supplied with automatic brakes. Especially is this desirable in a rough, uneven territory like that surrounding Cincinnati. An automatic "release" should also be attached to all kinds of animal vehicles, so that the tongue and shafts could be disengaged from the vehicle in case of accident. In this way many serious and fatal accidents could be avoided.

All kinds of public conveyances, such as carriages, wagons, omnibuses and chaises, should be under the care of a competent

superintendent, whose duty it should be to have them receive a daily cleansing and inspection.

THE BICYCLE,

While common, is one of the most important of vehicles for consideration, because of its injurious effects. These are especially noticeable in children, who, like the adult, should not indulge to excess. The best and quickest way to prevent these excesses is to enlighten the riders as to the dangers. An increased pulse-rate from 80 or 100 to 160 or 200 is a serious matter.

STREET-CARS.

No straw or matting, except wire or wood, should be on the floor. Floors should be washed twice each day.

All glass in a car should have heavy wire screens on the inside to prevent lacerations from glass in case of collision.

Seats should be wood and not cushions. The backs of seats should also be wood. If cushions are in a car, they should be subjected to dry heat sufficient to destroy all bacteria or parasites.

Lights should be constant, and not allowed to shine forty different ways within as many seconds.

Heat in a car needs as much attention as an engine, and should be placed at one point, where persons are not compelled to sit over it.

Ventilation should be as near perfect as possible. It should be under the control of an intelligent conductor, and not an unintelligent passenger.

No person should stand in a street car.

None but the side entrance at the back end of a street-car should be allowed. A gate should be at this place, and it should not be opened, for either exit or entrance, until the car has come to a standstill. It should be a crime for any one but the conductor to open the gate.

Open summer cars should be provided with heavy iron screens on either side, to prevent arms, legs and heads from protruding beyond the car.

INCLINES TO HILL TOPS.

While but two or three serious accidents have occurred to

these during the history of the city, many precautions could be taken that have not been taken to prevent further trouble.

Two motormen should be kept constantly in the lookout, so that in the event of the disability of one from apoplexy, fainting, accident or death, the other could prevent the destruction of life and property.

There should be four wheels on each side of the car, that three would safely carry it in case one should break.

The law provides that the locomotive engineer and fireman shall remain in the cab during the running period of the engine, but does not so provide for the presence of two pilots on watch during the running of the ordinary river steamboat.

I was called to see a prominent pilot who was stricken by cerebral hemorrhage within thirty minutes after the landing of one of the largest steamers on the Ohio river. She carried two hundred and fifty souls and an immense cargo down the river, passing numerous piers, on one of the stormiest nights of the year. No person was present with him in the pilot house. Here was a man in charge of two hundred and fifty souls and two hundred thousand dollars worth of property, who had upon a previous occasion been likewise afflicted.

Ocean steamers have two men on duty capable of using the compass—the compassman and captain—the first to manipulate the compass under the direction of the latter, whether he be near or far away. But on narrow bodies of water, like the ordinary rivers, accidents in the way of collisions occur quickly.

Camphor for Ether Collapse.

Schilling (*Munchener Med. Wochen.*), affirms that hypodermic injections of camphor, in larger doses than the text-books advise, are beneficial in ether collapse. Half-grain doses are very effective, but the results obtained from one-grain doses are extremely gratifying. The solution should be one part camphor to ten parts oil. As the camphor is eliminated within two hours it has no cumulative effect.—*N. Y. Med. Record.*

Resorption of the Salts of Iron.

In the *Zeitsch. f. Physiolog. Chemie*, Hr. Woltering has a paper giving the results of an inquiry into the resorbability of iron salts into the system. He first repeated Kunkel's experiments, and found that when iron was given to mice, rabbits or dogs, by the mouth, it accumulated in the liver; that, in fact, the liver was possessed of the faculty of storing up iron. The question then arose as to the form in which it was thus stored up. The author found that one of the combinations was a nucleoproteid. In this form it was firmly associated and could not be discovered without destroying the substance. He found, also, by later experiment, that the accumulation of iron resulted directly from resorption, and not from any property of preventing waste.

A further question was, whether the organism could make use of the accumulated iron in case it required it for the production of hemoglobin, and the author's opinion is that it can. On withdrawing blood from animals fed with iron, and others as check animals, he found that the blood corpuscles did not fall so low in the former class as in the control animals. The blood returned to its normal state much more quickly and completely in the animals possessed of accumulated iron than in the others. It was very noticeable, also, that in the livers of the animals not fed with iron there was much less of it than in the others, and that in the iron animals the quantity was equal to, if not above, the normal amount. The author does not state how long a time is required for the organism to use up its surplus iron stored in this way.—*Berlin Cor. Med. Press and Circular.*

A Superfluous Detail.

While poring over a recipe book the other day my attention was attracted by a recipe which ended something like this: "Then sit on the front of the stove, and stir constantly." Imagine sitting on a stove without stirring constantly.—*Harper's Round Table.*

NOTICES.

American Medical Association—Section on Dental and Oral Surgery.

1. Chairman's Address, R. R. Andrews, Cambridge, Mass.
2. "A Few of the Causes of Failures in the Dental and Medical Professions," B. B. Smith, Pensacola, Fla.
3. "Modern Methods of Treating the Antrum of Highmore," W. X. Sudduth, Chicago, Ill.
4. "Further Investigations Upon the Antrum," M. H. Fletcher, Cincinnati, Ohio.
5. "Cataphoresis," H. W. Gillett, Newport, R. I.
6. "The Technique and Pathology of the Peridental Membrane," Vida A. Latham, Chicago, Ill.
7. "Movements of the Mandibular Condyles and Dental Articulation," W. E. Walker, Pass Christian, Miss.
8. "Disease of the Oral Cavity, a Potent Factor of General Disease," S. W. Foster, Atlanta, Ga.
9. "Treatment of Children During the Period of Dentition," H. H. Johnson, Macon, Ga.
10. "Professional Congeniality," H. D. Wilson, Bainbridge, Georgia.
11. "The Replacement of the Superior Maxilla by a Mechanical Appliance," Thos. P. Himman, Atlanta, Ga.
12. "Practical Illustrations in Conservative Surgery," G. Lenox Curtis, New York City.
13. "—————," G. V. I. Brown, Duluth, Minn.
14. "Pyorrhœa Alveolaris," Eugene S. Talbot, Chicago.

Notice.

The twenty-eighth annual meeting of the New York State Dental Society will be held in Albany, May 13th and 14th, 1896, in Geological Hall. Quite a full programme of very interesting subjects has been prepared. Papers will be presented

upon the following subjects succeeding the annual address of the President, Dr. H. J. Burkhart, of Batavia, N. Y.:

"Pyorrhea Alveolaris, Its Causation, Diagnosis and Treatment," by C. N. Peirce, of New York. Discussion opened by G. S. Allan, of New York.

"Professional Fees," by S. G. Perry, of New York. Discussion opened by Wm. Jarvie, of Brooklyn.

"The Application of Medicaments in Pathological Conditions of the Oral Cavity," by M. W. Foster, Baltimore. Discussion opened by R. H. Hofheinz, Rochester.

"The Latest Achievements in Dental Art," by R. Ottolengui, Correspondent.

Report of Committee on Practice, by M. L. Rhein, Chairman.

The State Board of Dental Examiners will be in session at the same time, of which Dr. Wm. Carr, of New York, is Chairman.

The New York Society is one of our best State societies, and none can be present without being benefited.

Notice.

The Kentucky State Dental Association will hold its annual meeting at Louisville, June 16th to 19th, 1896.

A cordial invitation is extended to members of the profession in good standing to be present.

The State Board of Examiners will meet at the same time and place for the examination of candidates and such other business as may come before it.

J. H. BALDWIN, Secretary.

Notice.

The third union meeting of the Maryland State Dental Association and the Washington City Dental Society will be held May 8th and 9th, 1896, at Columbian Dental College Building,

Washington, D. C. Standing committees will report upon the following subjects:

"On Publication and Voluntary Essays," by A. W. Sweeny, Chairman, of Washington.

"Some Notes on Gold as a Filling Material," by L. Ashley Faught, of Philadelphia.

"Dermoid Cysts vs. Migrated Teeth—a Criticism," by Dr. Wm. A. Mills, of Baltimore.

"Curretting of Alveolar Cysts," by Dr. D. E. Wiber, of Washington.

"Anatomy, Physiology and Histology," by W. S. Twilley, of Baltimore, Chairman. Reported by H. C. Thompson, of Washington.

"Operative Dentistry," reported by C. M. Gingrich, Chairman, of Baltimore.

Essay, by L. C. F. Hugo, of Washington, "Approximal Work as Determining the Shape of the Inter-dental Space—the Important Factor Involved."

"Prosthetic Dentistry," report by J. Rowland Walton, Chairman, of Washington.

"Dental Education, Literature and Nomenclature," reported F. J. S. Gorgas, Chairman, of Baltimore.

Essay by Wm. A. Mills, of Baltimore, "A Plea for a Higher Education of Individual Members of the Dental Profession."

"Pathology and Therapeutics," reported by L. F. C. Hugo, Chairman, of Washington.

"Pathology and Therapeutics of Dead Teeth," by Gordon H. Claude, of Annapolis, Maryland.

"Treatment of Oral Acidity with Milk Magnesia," by Dr. Wm. S. Donnelly, of Washington.

"Crown and Bridge-Work," reported by W. B. Finney, Chairman, of Baltimore.

"Orthodontia and Dental Appliances," reported by M. F. Finley, of Washington.

"Oral Surgery," reported by P. E. Sasscer, Chairman, of Waldorf, Maryland.

"Report of a Peculiar Case of Replantation," by R. H. Jones, of Wilmington, Delaware.

"Report of a Case of Fracture of the Lower Maxillary Bone," by J. R. Hagan, of Washington.

"Report of Case Restoring Oral Cavity from Ravages of Epithelioma," by David Genese, of Baltimore.

"Report of Two Cases of Epulic Tumor," by M. F. Finley, of Washington.

"Anæsthetics," reported by L. L. Harban, Chairman, of Washington.

"Hygiene," reported by H. W. Lakin, Chairman, Boonesboro, Maryland.

Essay, by J. H. P. Benson, of Washington, "Lectures upon Dental Hygiene in our Public Schools and Colleges."

"Dental Legislation," reported by H. B. Noble, Chairman, of Washington.

Paper by Richard Grady, of Baltimore, "A History of Maryland's New Dental Law."

Essay by A. W. Sweeny, of Washington, "Dental Legislation."

Paper by H. B. Noble, of Washington, "Recent Legislation in the District of Columbia."

Extensive arrangements have been made for interesting clinics and demonstrations which will embrace a large number of subjects.

EDITORIAL.

National Library and Museum.—Dental.

At the last annual meeting of the American Dental Association a committee was appointed to take into consideration the matter of establishing a Dental Library and Museum in connection with the National Army Medical Museum and Library at Washington, D. C. This committee was asked to consider the subject in all its bearings, and were given power to act, so far, at least, as taking the initiative for carrying out the proposed ob-

ject. This committee consists of Dr. Wm. Donnelly, of Washington, D. C.; Dr. J. Taft, of Cincinnati, O.; Dr. L. D. Shepherd, of Boston, Mass.; Dr. J. H. McKellops, of St. Louis, Mo. and Dr. Henry Morgan, of Nashville, Tenn. Some attention and thought has been bestowed upon the matter by the committee, and a circular to the profession has just been issued. This circular emphasizes the importance and value to the dental profession of such a national collection, which, when established, would serve for reference not only in regard to things present, but would especially illustrate the past history of the science and art of dentistry; and further than this, this department of the collection would, in common with others, have behind it the support of the Government, which will permanently maintain such a collection at the National Capital. At first this institution, namely, the Army Medical Museum and Library, was limited to military medical subjects, but later greatly broadened its scope until it is now practically a medical department of the Government, maintained by congressional appropriations, housed in a large building erected for the purpose, extended to cover the whole field of medicine and surgery, and open to the public the intellectual property of all classes and a nationalized collection for the medical profession. This vast museum is visited annually by over 50,000 persons and consulted by over 3,000 students. The museum contains about 35,000 specimens, of which over 12,000 are pathologic. The Army Medical Library is the largest and most complete of its kind in existence. It contains three-fourths of the medical literature of the world, and nine-tenths of that of the past ten years. It contains 120,000 bound volumes and 190,000 pamphlets. Its literature is greater in volume than the medical literature of either the library of the British Museum or the National Library of France. It covers a wide field, and embraces a better reference and working collection. It has an unequalled index catalogue of 18,000 pages. The dental section of this library contains a large and choice collection of the recent literature in English and other languages relative to dentistry, and our efforts will be to make this section complete as far as possible, especially embracing the rarer publi-

cations which disclose the conditions from which modern dentistry developed and revealed the history of the forces and factors operative in the evolution of the distinct profession.

While the library of national dental literature is being built up, the museum department should by no means be overlooked or neglected. Everything that can in any sense add to the interest of such a collection should ultimately be found in this department, such as instruments, models, drawings, machinery, also material of all sorts. The importance of prompt action in making such a collection of both books and specimens is especially emphasized, when it is remembered that as time goes on many things are continually passing out of reach. Early literature of the profession is becoming more and more rare every year, and is fast passing out of reach altogether. While it is true that some of the dental colleges of our country are becoming interested in making collections, in both of these directions, it is equally true that such collections, with however much of interest they may be gathered, can never take the place of, nor serve the purpose, of a national library and museum. So far as the schools are concerned their collections will be made with special reference to their use in their courses of instruction. That is about the only use a dental college could have in procuring and arranging a library. Those objects and books which could not be utilized in this way would necessarily be eliminated and most certainly lost. All specimens and books sent to the National Museum will be carefully arranged and labeled with the name of the contributor and so placed as to be easily accessible. Ample room is guaranteed for this collection. No one should hesitate to send anything fitted for such a collection because he might imagine there were duplicates already there. Indeed, we can conceive that one of the valuable points in such a collection would be the opportunity it would afford to dental colleges to make exchanges, or to procure things that could not elsewhere be found; so do not hesitate to send because there might be multiplication of some objects. Another point to be borne in mind is that such a collection will be more permanent and enduring than any private collection could possibly be, and much more permanent than it could be in a collection of a dental college.

"WHAT are you doing?" Dr. Holmes once asked a student in the dissecting-room. "Ligating arteries, sir." "Why not say tie?" rejoined the doctor. "I find that country practitioners ligate arteries and that surgeons tie them." The best of this anecdote is that the unappreciative student spread it as a joke against Dr. Holmes.—*Exchange*.

Mississippi Valley Dental Society.

The fifty-second annual meeting of the Mississippi Valley Dental Society was held on the 15th and 16th of April, and manifested about its usual vigor and interest in professional matters. The programme prepared by the Executive Committee was a very good one indeed. Most of the subjects presented were in reference to new things or new phases of things that have been used for a time. Among the dental appliances and processes exhibited were the "Hot Air Cavity Dryer," by Dr. Wassell, of Chicago; "Collection of Experimental Root Fillings," by Dr. Harlan, of Chicago; "A Water Rheostat for Cataphoresis," by Dr. Wm. H. Hersh, Piqua, Ohio; "The Jennings' Electrical Cataphoric Obtunder," by Dr. Callahan, of Cincinnati; "Atmospheric Dentures, Upper and Lower," by Dr. Ames, of Chicago.

Papers on the following subjects were read and discussed as fully as the time would allow: "A Suggestion on the Origin of some Cases of Pyorrhœa Alveolaris," by Dr. Matlack, Cincinnati; "Roentgen X Rays," by Dr. Sage, Cincinnati; "Ground Porcelain Inlays," by Dr. Harlan, of Chicago; "A Suggestion," by Dr. Bethel, of Kent, Ohio; "Progressive Calcification," by Dr. Cravens, Indianapolis; "Treatment of Sensitive Dentine by Cataphoresis," by Dr. Custer, Dayton, Ohio; with demonstrations.

These papers will be published in the DENTAL REGISTER with a synopsis of the discussions had upon those which were discussed.

It was an excellent programme, but contained altogether too

much matter for the time allotted to the sessions. In the discussions justice was not done to a single one of the papers read. Almost every one who attempted to discuss a paper was on short time, and many were prepared for discussion who had not the opportunity. Nevertheless, the meeting was a good one, its social features very pleasant, and on the whole the Society demonstrated the fact that it was capable of yet doing grand work for the profession.

The officers for the ensuing year are Dr. J. E. Cravens, Indianapolis, President; Dr. H. T. Smith, Cincinnati, Secretary; Dr. Frank Hunter, Cincinnati, Treasurer.

The election of officers occupied only about ten minutes. The Mississippi Valley has in all respects only a minimum of routine business. For this purpose not over thirty minutes was employed during the whole meeting. Long live the Mississippi Valley Society of Dental Surgeons.

Popular Education in Dentistry.

A paper on this subject was read at the recent meeting of the Mississippi Valley Dental Society in which some valuable suggestions were presented. It deals mainly with the methods of accomplishing this work, and some very interesting—and in certain directions very practicable—thoughts are presented. This has, ever since the establishment of the profession, been a subject of interest with dentists. The subject has been discussed in nearly all dental societies. At the last meeting of the American Dental Association a committee was appointed to take the matter into consideration and devise and arrange for carrying out some scheme looking to this end. Various methods of accomplishing this object have been suggested in the past, such as giving information by popular lectures, introducing proper dental information into schools—either by lectures or text-books or

both—and by the publication of popular treatises (these to be distributed by dentists generally), and by each and every dentist constituting himself a teacher in this line so far as he might be disposed and have the ability. Dr. Bethel, in the paper referred to, deals chiefly with the public press as an avenue through which this work would be practically carried out, and he gives in that article (which may be found on page 234 of the present issue), somewhat of the details of the method. If these could be carried out and could have the full co-operation of the profession generally, there is no doubt that great good would be accomplished. We think it true, however, that the various methods referred to may each and every one be valuable if wisely employed, and we would suggest that every dentist study this subject for himself, carefully reading Dr. Bethel's paper, and then work on this line energetically in whatever way seems to himself most feasible. Perhaps any of these methods, if adopted heartily by the profession, could be made to accomplish very great good, both for the public and the profession.

In the discussion of this subject the position was taken that the ignorant patient was the best and most desirable one. This position, however, did not find a hearty response from those who were present.

BIOGRAPHICAL SKETCH OF DENTAL PATHOLOGY AND PRACTICE. By Frank Abbott, M.D.

This is a work of 240 pages recently issued by the S. S. White Manufacturing Company. It consists of twenty-two chapters, and presents the views of the author very clearly and concisely on the histology of the teeth, but more especially with reference to the pathology of enamel and dentine, with some special reference to the etiology of caries. He also embraces microscopic absorption of temporary teeth; a chapter on exposed pulps and their treatment, and the management of pulpless teeth and alveolar abscess. He also devotes a chapter to the diseases of the antrum, especially with reference to dental com-

plications and their treatment, salivary calculus and pyorrhœa alveolaris, also facial neuralgia, hypertria of cement, etc.

Dr. Abbott has formed a very valuable work for the profession in bringing together in this form his views upon these and other topics which have from time to time been presented before the American Dental Association and elsewhere. Much additional matter, however, is embraced in this volume, and as a whole it is a very valuable work. While, of course, there are points presented upon some of these subjects about which there is a diversity of opinion in the profession, and some of which will afford ground for criticism by some, it has perhaps as few objectionable features as any work of the kind would be likely to have. It will be a very valuable work for both the student and the practitioner. The defective or abnormal features of the enamel is, perhaps, as fully and clearly set forth in this work as will be found anywhere else. This is a subject to which Dr. Abbott has given a large share of attention under the advantages of superior opportunity and aid. Dr. Abbott is entitled to great credit for the production of this work, and, we doubt not, it will in a large measure be accorded him.

Biographical.

Died, at his home in Indianapolis, April 24th, of disease of the heart, Dr. Phineas G. C. Hunt, aged sixty-eight years. Dr. Hunt was born in Champaign County, Ohio, in 1827. In 1833 he, with his mother, who was a widow, with her other children, removed to Indiana. He received a common school education in Wayne County, near Richmond, Ind. His winters were devoted to school work, and during the other portions of the year he was engaged in farm labor. At about the age of nineteen years he began to consider the question of a life occupation. Having a brother, David P. Hunt, then practicing dentistry in Indianapolis, he made a visit to his brother, which resulted in his becoming a student in dentistry in 1846. Two years later

his brother died, and Dr. Hunt found the duties and responsibilities of a full practice suddenly upon his hands, while yet scarcely more than a boy. He thus began with a full and independent practice at the age of twenty-one years. The professional career of Dr. Hunt extended over forty-five years in one community, and was one of almost unparalleled success. Throughout his professional life he was recognized as a leader in the dental profession in Indiana, and one who scrupulously maintained the dignity of his calling. He was always recognized as being well up with the times, often reaching far in advance of his co-laborers. Dr. Hunt was one of the first dentists in the West to cast aside the prejudices and jealousies once so characteristic of the profession of that day, and to throw open his doors to his brethren, imparting to all seekers the knowledge with which he was so well equipped. He was a frequent contributor to the dental journals. He also originated many ideas in practice and devised a number of instruments and appliances in connection with dentistry. He was one of the first to illustrate that new teeth could be extracted and afterwards replaced in the jaw so that they would become fixed and useful after the gums had been properly treated. He was an enthusiastic experimenter. A little incident will fully illustrate this: One day in the '70s he called a number of his friends to his home, where the first thing he did was to direct them to the poultry-yard, where he had on exhibition some half dozen roosters, each one of which had a human tooth firmly grown in its crest, thus illustrating the principle which has elicited so much discussion since that time. He was a graduate of the Ohio College of Dental Surgery; he also received the title of M.D. from an Indiana medical college. He was a member of many dental societies, and was a member of the Board of Dental Examiners of the State of Indiana, of which board he was President many years. The following action was had at a meeting of the dentists of Indianapolis the day after his death:

"A meeting of local dentists was held at the office of Dr. T. S. Hacker, April 25th, to take action with reference to the death of Dr. Hunt, who was the oldest practicing dentist

in this city. There were present the following: T. S. Hacker, Merit Wells, Alex. Jameson; William S. Rawls, E. E. Reese, Elmer Smythe, A. J. Morris, Willard Gates, Dr. George, Robert T. Oliver, D. H. Oliver, David B. House, J. B. Morrison, Frank A. Hamilton, J. Q. Byran, Maurice Raschig and J. E. Cravens.

"The following preamble and resolutions were adopted:

"WHEREAS, The death of Dr. P. G. C. Hunt of this city has removed from the ranks of active dentists one of its foremost and most honored members, therefore, be it

"*Resolved*, That in the death of Dr. Hunt the dental profession of this city and State has sustained irreparable loss. Dr. Hunt in the highest sense represented the spirit of progress in his chosen profession. His death takes from us the best representative of the self-made practitioner. Dr. Hunt early made his influence felt in the national councils of dentistry and his ideas are to be found embalmed in the books of to-day in the schools of dentistry. The history of American dentistry can not be written without contributing to his praise.

"*Resolved*, That a copy of these resolutions and note of this meeting be transmitted to the bereaved family of Dr. Hunt, and that the daily papers be requested to publish the same.

"A beautiful floral tribute was ordered to be placed upon the casket. It will contain the inscription, 'From the Dentists of Indianapolis.' It was decided to attend the funeral in a body and to extend invitations to all dentists of the city and vicinity to join them."

Biographical.

DIED, April 18th, in Paducah, Ky., Dr. J. H. Kinny. Dr. Kinny had been ill for several months, his health gradually failing. He was buried in St. Louis Cemetery, Louisville, Ky. Dr. Kinny was one of the well-known men in his profession in

southwestern Kentucky, and indeed, was favorably known throughout the South. His death will be a shock to his many friends.

Dr. Kinny was born July 15th, 1842, in Brooklyn, N. Y., and received his education in that city. In 1854 he moved to Kentucky, located in Louisville, where he took a course in a dental college, after which he removed to Hardinsburg, Ky., and in 1871 removed to Paducah, Ky. He attained a good degree of professional success. The removal of such a man is a great loss to our profession. His family will have the sincere sympathy of all who knew him.

RESOLUTIONS OF RESPECT.

At a meeting of the dental profession of Paducah, held at the office of Dr. Pitcher, to take action on the death of Dr. J. H. Kinny, the following resolutions were passed :

WHEREAS, It has pleased Almighty God in His wise providence to remove from our midst our beloved practitioner, Dr. J. H. Kinny ; therefore, be it

Resolved, That in the death of Dr. Kinny the profession at large has lost one of its most skillful and energetic members as well as a true, kind, noble and generous gentleman, one who was always ready to extend a helping hand to his fellow-dentists as well as his fellow-man, and willing with his knowledge to aid at all times the elevation of his profession.

To his beloved wife we extend our deepest heartfelt sympathy and cheer her in the belief that he has gone to his heavenly home, where he is free from pain and where there is no sorrow in that house not built with hands, eternal in the heavens.

Resolved, That a copy of these resolutions be sent to his wife, to each of the city papers and to different dental journals.

C. E. WHITESIDES,	W. H. PITCHER,
W. L. HANSBRO,	A. S. DABNEY.

PADUCAH, KY., April 20th, 1896.

THE DENTAL REGISTER.

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[No. 6.]

COMMUNICATIONS.

The Electrical Aspect of Cataphoresis.

BY L. E. CUSTER, B.S., D.D.S., DAYTON, OHIO.

Read before the Mississippi Valley Dental Society.

During the past year the literature and discussions upon cataphoresis have developed so many remarkable statements from an electrical point of view that it seems in place to give a few personal observations in this connection.

Since cataphoresis is a modification of the electrolytic property of electricity, the current must flow in one direction. It may be continuous, pulsating or interrupted, but so long as it flows in one direction when it is in action, the result will be the same, and a suitable agent will be carried with it in cataphoresis. It has long been observed, however, that the more uniform the pressure is maintained on a continuous current the less it is felt in its various applications in electro-therapeutics and in proportion as the pressure varies, while it may still be continuous, will it be painful to the patient. So it may be stated that under steady pressure a small continuous current is not painful but becomes so when it pulsates. It becomes more so when it is interrupted and still more so when reversed in direction. It is for this reason that the interrupted current is used in shocking machines and that the alternating current is so deadly. Dr. Morton and others prefer the galvanic current partly for the steady voltage which is characteristic of this current and the small amount of pain accompanying its applications. On the other hand there are those who claim

that the Edison current furnishes a practically steady voltage. Theoretically, the galvanic current gives the more uniform voltage, but those who use it seem to forget that they annul this virtue of battery power every time they touch the rheostat for increasing the current as is customary in its application.

The Edison current is ordinarily supplied at 110 volts pressure. In our city I have noticed by my volt meter that during the whole twenty-four hours it does not vary five volts and that during the daytime especially it does not vary two volts. The widest variations occur between 4:00 and 10:00 P. M. Now, when this current is used for cataphoresis by the appliance which I have devised for that purpose, by which I get the cataphoric current by a shunt circuit, the variation in voltage at the poles is in proportion, as the cataphoric voltage is to 110. For instance, if the Edison voltage is 110 and the cataphoric voltage average ten during the application, it would be necessary that the Edison current vary eleven volts to produce one volt variation in the shunt, or in other words, a variation of say five volts, an unusually large variation, in the main, would produce a variation of but half a volt at the cataphoric poles. Yet why object to this when the operator increases the voltage from one to five volts at each manipulation of the rheostat?

Altogether the objection to the Edison circuit, that its unequal voltage is perceptibly felt, does not appear as strong as claimed. It may be that where the poles of some appliances are directly in the circuit and in series with high resistance that the variation in the voltage is perceptibly felt, but in the appliance which I here present the variation averages very much less than one volt during an application and this is not perceptible. In many cases it is necessary to increase the pressure two to five volts before the patient feels the increase.

Many of the reports of cases have varied so much from the common electrical formula and from my own observations that either the measuring instruments were not correct or were not properly used. In one instance a writer speaks of increasing the current without increasing the voltage at the same time, while the resistance remained the same, notwithstanding the fact that elec-

tricians have for seventy years been substantiating the law laid down by Dr. Ohm, that the current strength in any circuit is equal to the electro-motive force divided by the resistance. It is not possible to increase the current through a constant resistance without increasing the pressure, or to use a common illustration, you can not increase the flow of water through a pipe of a given size without increasing the pressure.

The wide difference in the amount of current also led to some experiments as to their cause. The enamel consists of about 97 percent lime salts, which is a non-conductor of electricity, and the remaining 3 percent is such a small amount that it offers so much resistance as to be practically a non-conductor. This fact, that a sound tooth is covered by a non-conductor of electricity, may have a wider significance than we at first thought, would allow, and it may have a physiological significance as well. At any rate the fact that enamel is a non-conductor of electricity is an important consideration in cataphoresis.

On the other hand, about one-third of the dentine is made up of animal matter which contains water and is a comparatively good conductor. The matrix of the dentine is almost solid lime structure, and like enamel is a non-conductor. But within the tubule is contained the dentinal fibril which is made up almost entirely of water. It is this that we wish to obtund, and fortunately its large percentage of water makes it a good conductor. When the current is applied it follows the course of these canals to the pulp. Here I will call attention to the importance of enlarging the cavity with the chisel at first, about as it is desired when finished, because the fibrils anastomose so little that the area of anæsthesia is confined almost entirely to those tubuli whose mouths open into the cavity. In a long application in a deep cavity, however, the pulp becomes affected and the fibrils supplied to other portions of the crown lose their sensation as deeply down as the pulp itself has been affected.

So then the enamel being a non-conductor of electricity and the path of the current following the tubuli through the dentine, it is easy to understand why in some instances an operator could use one milliampere while in another but one-tenth as much as the

same voltage. A small exposure of dentine is like a small wire, it offers more resistance than a large cavity or a large wire. In the practical operation of cataphoresis we must consider the path from the positive pole in the cavity to the negative pole at the sponge to be like a funnel with the small end equal to the area of exposed dentine and the large end the area of the sponge upon the face. No more water can flow through the funnel than can pass through the smaller end, and so no more current can flow than can pass through the exposed tubuli, and the current increases in proportion to the size of the cavity at the same voltage. It is for this reason that an ammeter is not of much practical value for dentine anæsthesia. It is often a satisfaction, however, to know how much current is being used in the operation, but if it is to be used for recording and the establishing of tables the size of the cavity must also be tabulated.

Dentine which has been denuded of enamel for a long time will probably offer greater resistance than freshly-exposed dentine.

The position of the negative electrode has much to do with the application of the current. The shorter the distance this is placed from the tooth under operation the less voltage will be required to force the current through, and the less will be the variations due to the alleged unequal Edison current. After experiment I find that it requires about three times the voltage when the sponge is held in the hand than when held upon the cheek, so would recommend that the negative pole be placed upon the cheek and held in place by the same appliance which ordinarily holds the rubber dam back. This has been my method, and it is seldom that the voltage exceeds fifteen, while in some accounts I see it is very much more than that.

As to the detail of manipulation it is essential that the current be not broken during the application. This is very likely to occur if the anode is held by the operator. Even if the instrument does not come entirely out of the cavity it is very difficult to hold it perfectly quiet for the ten or fifteen minutes of the application. The least movement is perceptible to the patient, and especially if the cotton is not well saturated. To avoid any such dangers I have devised an anode to be slipped on the ordinary

rubber-dam clamp. This appliance is so constructed that the anode is electrically insulated from the clamp and at the same time is firmly held in position. This allows the operator free to manage the administration of the current. In this connection I might state that appreciating the fact that a gradually increased current is much less painful than one by steps. I hope soon to complete an appliance actuated by clock-work which will meet the requirements of dental cataphoresis.

It may be worth while to call attention to the placing of the anode in the cavity. It is to be inferred from reports that the operator generally places a saturated pellet of cotton in the cavity and then holds the anode upon that. The reverse should be the order. Secure the instrument in the cavity and place a heavily saturated pellet of cotton about it and the instrument will be flooded about by capillary attraction, and any small movement of the instrument will not be perceptible, whereas if it is placed upon the cotton the loss by electrolysis is noticeable and there is greater danger of breaking the current.

The appliance which I have devised for this purpose is made in this manner: one 8 c. p., or preferably two 16 c. p., lamps are used for the main resistance. Two 16 c. p. lamps are preferred only for safety, as a ground would meet with resistance on either wire. In series and between the two lamps is placed a resistance coil of about sixty feet of .01 German silver wire wound in a No. 34 thread cut in a rod of fiber an inch in diameter and seven inches in length. To the wire to the left is attached the wire leading to the cathode. An ammeter may be placed anywhere in this wire. The wire from the anode is attached to a movable brush which slides along in contact with the resistance coil. If the anode is placed in the cavity and the cathode upon the cheek a circuit from the brush will be closed through the patient as well as the one through the main line. The circuit through the patient is called a shunt circuit. When the brush is at the left, no current flows through the patient because the patient offers so much resistance and there is no resistance on the main wire, but on moving the resistance between the two points increases so much that the current divides and a little is sent through the patient. The

amount of current flowing through one branch of a divided circuit is inversely proportionate to the resistance of the other branch, so that if the resistance increase in one branch more will be forced through the other. So by this arrangement if 16 c. p. lamps are used, as illustrated, there will be a range of twenty-four volts through the patient. If instead of 16 c. p. lamps, 20 c. p. lamps are used, there will be a range of about thirty volts, and so on.

Such an appliance can be made at a very small cost, and since the operator is guided by signs from the patient how much current to use, the volt meter and ammeter are not strictly necessary.

DISCUSSION.

[The Executive Committee had made arrangements with a number of patients to be present in the operating room of the college as subjects for illustrating Dr. Custer's method of cataphoresis. Upon the conclusion of the paper the association adjourned in a body to the commodious Infirmary and witnessed the clinical demonstration.]—REP.

DR. H. A. SMITH: Dr. Custer's paper is so complete that discussion of it seems to be superfluous. In connection with this subject it occurs to me that a 25 percent solution or mixture of pyrozone in a dead tooth would, by applying the current, liberate nascent oxygen and an instantaneous bleaching would result. I can not see why complete disinfection of root-canals might not be accomplished in the same way.

DR. J. S. CASSIDY: This paper is above criticism. In the process known as electrolysis, the electrolyte is decomposed. What I would like to satisfy my mind upon is, will cataphoric action carry in the medicament without decomposing it? Will electrolysis interfere with cataphoresis? Is the cocaine decomposed? If, in using hydric-peroxide, would the oxygen be carried through the tooth if the poles were reversed, oxygen always going to the positive pole?

DR. O. N. HEISE: The subject, as presented by Dr. Custer, is mainly in its relation to the kind of apparatus used. He does away with the expensive ones now on the market like the Wheeler Fractional Volt Selector, which, no doubt, has been the

one mostly used and mentioned in the various articles published on this subject; the cost of this apparatus is sixty-five dollars. The one here spoken of is simplicity itself, and every one who so desires can make one for himself and at an expense of a few dollars. I hope, however, that Dr. Custer will take the trouble to put them on the market.

One of the points in the paper, and a very important one in the practical and successful application of cataphoresis, is his calling attention to the non-conductivity of the enamel. If we should attempt to obtund the dentine by placing the positive pole on the enamel, and proceed in the usual manner, our success would be *nil* and only lead us to lose confidence in cataphoresis. I have heard of some parties making the bold statement that they could force the cocaine solution through the enamel without any difficulty. I think it was a lack of experience that led them to make such a statement.

The other point, as to the size of cavity and number of dental tubuli exposed, has a direct bearing on the success of its application. The dentine itself is a poor conductor of electricity, and the more we can open a cavity by cutting away the enamel, that much more readily and positively can we force the cocaine solution through the tubuli and thereby have its obtunding effects produced. The subject of cataphoresis and electrolysis is one of vast importance to us, and I hope that Dr. Custer, who has done so much in this intricate subject of electricity, will go on with his experimentations, and I know his results will be fruitful and beneficial to the profession.

DR. CUSTER: Some one has asked the question as to application for extraction. For this purpose two branches of the positive pole are to be applied one on each side opposite the root apex, the negative on some other convenient part of the body.

DR. E. G. BETTY: Dr. Custer, will cataphoric action take place when the positive pole is applied to an unbroken surface of enamel?

DR. CUSTER: I have found that I was unable to drive a 40-volt current through enamel, though the tooth had not been dried, the rubber dam having just been adjusted. Anæsthetiza-

tion can not take place through enamel, it being so poor a conductor as not to be a conductor at all.

Subject passed.

Dental Vulcanite.

BY W. STORER HOW, D.D.S., PHILADELPHIA, PA.

Read at the Mississippi Valley Dental Society, April 18th, 1896.

Steel is hardened by heating it to redness and plunging it in water; it is then gradually heated to produce the desired temper-color. The process is so apparently simple that almost any one can do it, yet, long experience and a high degree of skill are required to properly harden and temper steel.

The vulcanizing process is likewise a simple one, but the production of good dental vulcanite is very unusual, because the art in its seeming simplicity is commonly deemed to require but little thought or skill. It is, however, a great mistake to jump to that conclusion, for the making of a fine, strong, solid, odorless vulcanite denture demands careful, intelligent attention to many essential details.

The plaster model should be smooth and hard. The waxing up is to be done neatly and of the right thinness for the vault-part, with a judicious thickness of the ridge and gum-parts which are commonly much too thick. They, therefore, get unequally vulcanized, as the thin parts and thick parts will not evenly harden at the same high heat in the same short time. This is a fundamental fact of the first importance, and its general neglect accounts for the porous, malodorous dentures so often seen and smelt.

A large flask (the Griswold is the largest and best), should be chosen, and with thick-mixed plaster, free from bubbles, the model is set at an angle, as in Fig. 1, to insure safety to an overhanging anterior ridge, making the parting line along the waxed gum border. Shellac varnish the smooth plaster investment and when dried oil that parting surface and pour thick mixed plaster

for the mold, jarring the flask to drive the plaster over all the teeth and waxed surfaces. Warm the flask and allow time for the heat to reach and soften the wax, so that the teeth will not be dislodged on separating the flask. Remove the wax and pour boiling water over the model and mold, to melt and wash out the

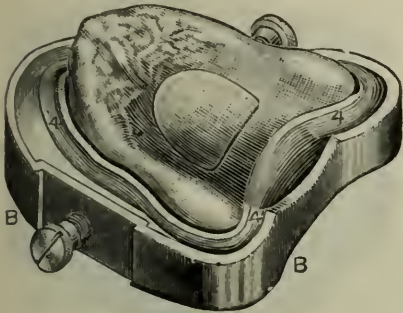


FIG. 1.



FIG. 2.

remaining wax. Then with alcohol and a camel's hair pencil brush the exposed teeth and pin surfaces to dissolve the wax or water film, which otherwise will prevent adhesion of the vulcanite; and here is disclosed a common cause of loose teeth, the breaking of unsupported teeth and of foul plates. That film also prevents a close fit of the cement stopping of section-joints, and allows the vulcanite to flow between the cement and the sections to make a dirty joint. To provide for the surplus rubber a deep circular groove is cut in the mold-part, leaving a narrow rim between the model and the groove, as 4, in Fig. 1; also as shown in Fig. 2. This allows a free flow of the rubber until the flask is nearly closed, when the flow is checked by the narrow rim, and then the increased pressure distributed over the inclosed rubber drives it into every part of the mold and increases the density of the resulting vulcanite.

It is best to shellac varnish the model and mold (taking great care to keep the varnish from the teeth), and when the shellac dries sticky, burnish tin foil over both model and mold, using a keen-edged knife to cut the foil close around the teeth. This work, nicely done, will, on stripping off the foil after vulcanization, leave a dense, smooth surface, needing very little finishing

work. More than that, the surface will be hard and very resistant to the penetration of the oral fluids, or the retention of salivary or alimentary deposits.

A novel and important function of the Griswold flask, Fig. 3, peculiarly adapts it for flasking cases wherein the gum-sections or single teeth have been arranged or ground to fit directly upon the ridge of the model. It is obvious that if the parting line is made between the two parts of the common flask in the usual way, leaving the teeth in the mold-part as shown in Fig. 4, a complete closure of the flask will probably fracture the thin gum of the section (or the thin neck of the plain tooth) by contact with the ridge of the model. If the flask is not quite



FIG. 3.

closed, then the bite will be lengthened or disarranged. But by locking together the base-part B and center C, Fig. 3, the model A and waxed-up teeth B, Fig. 5, can be set in that deep flask so that the investing plaster D shall cover the top of the teeth and make the parting-line at the edge of the center-part C. Then the flask top T may be locked onto the center C, Fig. 5, and plaster poured through the half-round opening on to the shellacked and oiled parting surface to form the mold-part E.

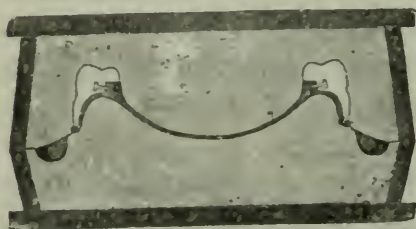


FIG. 4.

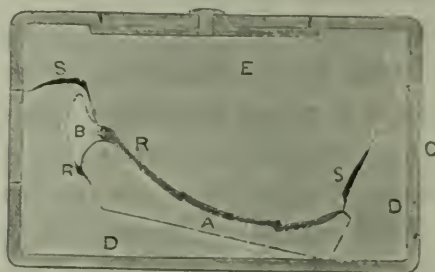


FIG. 5.

This subsequently serves as a plunger to drive the rubber R, R, into every crevice around the teeth. The grooves for the surplus S, S, should be deeper and nearer the teeth than shown in the sectional view, Fig. 5.

In packing the rubber, there is opportunity for both judgment and skill in cutting suitable pieces, keeping these and the flask-parts warm and clean, and packing the pieces in close contact without much excess of material. The surplus groove should, however, be ample to allow the complete closure of the flask after immersion in very hot water, followed by strong screw-pressure. The closed flask should be securely locked to retain the valuable compressive action for making the vulcanite base dense.

A rubber of well-known purity, strength, color, and vulcanizing heat period is always to be used, but it is a very important fact that the proper heat and time limits are to be varied in accordance with the differing thickness of the several portions of the case in hand; the best results being generally attained by a gradually raised and finally sustained low and long heat. For instance, with a rubber scheduled for one hour at 320° F., a large denture having thin palatal with thick ridge and lip portions will properly require a gradually rising preliminary heat of full forty minutes, and a final period of an hour and a half at 310° F. The surprising excellence of the hard and tough product will well repay the extra expenditure of time and care.

If found necessary (as it seldom should be), to do considerable filing and scraping in finishing such a denture, no holes or stench-traps will be found in that vulcanite, because intelligent provision has been made for the slow and certain interstitial evolution and elimination of the sulphuretted hydrogen which is often confined within the vulcanite skin to form the foul pores and pockets resulting from the commonly crude and quick process.

A first-class automatically regulated vulcanizer is preferable, and the best can be none too good considering the professional work to be done. In any case the vulcanizer should be steam-tight, then water a quarter of an inch deep will be sufficient, and will not boil into the flask to soften the plaster and otherwise cause injury to the vulcanite.

DISCUSSION.

DR. GRANT MOLLYNEAUX: A series of four articles on this subject, by Dr. Snow, appeared in the *Dental Advertiser* in 1887.

They, without exception, constitute the most thorough treatise on vulcanite I have met with, and with great propriety could be used as text-book literature.

The expansion of vulcanite, incident upon the raising of the temperature to 320° *Fahr.*, is more than seven times that of iron. This expansion is followed by proportionate contraction on cooling, so that a plate made upon a water-soaked cast (already too small) results in a denture entirely too small for the mouth. The plate is subjected to two contractions, one upon cooling, the other, a form peculiar to vulcanite itself. The plate exhibits a convex surface when taken from the cast, the result being that contact first obtains on the hard palate, producing rocking. In experiments that were made, vulcanizing on a plain surface of plaster, this convexity of form in the vulcanized piece of rubber was shown by its lifting away at the sides from the square of plaster and remaining in contact with it in the middle of the square. This refers to the sheet of rubber placed on the top of the plaster square. Another sheet, vulcanized on the bottom of the block, showed the same result, the plaster being forced down into the center of the sheet, constituting a depression in it, while the edges turned up as in the case of the sheet upon the top of the block. To obviate warpage, in making repairs, I place the flask in the vulcanizer with the teeth *down*, next to flame—the philosophy of this is readily apparent, the pressure from expansion being upward and against the sides of the cast, and should a space result it will be at the center of the vault, and is desirable because it obviates the rocking above explained.

Subject passed.

The X Rays in Dentistry—A Whimsey.

BY FRANK W. SAGE, D.D.S.

Abstract of a paper read before the Mississippi Valley Dental Society,
April, 1896.

In November of last year, in the town of Wurzburg, Germany, was made a discovery which seems destined to confer upon the science of surgery a power of benefiting the race in

even a greater degree than has the comparatively recent discovery of Lister.

It is a fact significant, and worthy of note, that the first suggestions as to the value of this important discovery had reference to its availability in surgery. Aside from casual suggestions as to the use of the rays in the arts—their application to the testing of castings, welding metals, *et id genus omne*—attention seems, by common consent, to have turned to their use as an invaluable adjunct to surgery. This is natural and befitting, since the addition to our knowledge of so invaluable an aid to the prevention or alleviation of human suffering, must be conceded to outweigh any consideration of possible advantage which might accrue to the sciences and arts on the side of mere utility and convenience. Far more important is the consideration that the surgeon may be aided in a manner hitherto beyond the dream of possibility, in examining tumors, all affected tissues of internal organs, *e. g.*, malformations, fractures, abscesses, impacted or encysted foreign bodies, etc. Far more important is this than that the artisan should be enabled to detect hidden flaws in metals, or that the photographer should find at his command a new experiment to excite the dilettante's curiosity by a feat of magic surpassing the most wonderful of any school of mystics.

But in all the many lucubrations on the nature and the possible availability of the mysterious X rays, not a word has the author of this screed seen in any publication, magazine or newspaper, touching the benefits likely to accrue to the dentist or to the dental patient. The dental journals of recent date contain one or two articles on the great discovery, but singularly enough not a hint of promised value to our profession is to be found in them. And yet, the merest casual reflection, it would seem, should have suggested the probability that this discovery is destined to work a revolution in the matter of diagnosis alone, infinitely more important than any late discovery in pathology, histology or therapeutics. Now, that Mr. Edison promises us shortly a perfected instrument for revealing—not by photography, but by the immediate and direct application of the X rays to the patient's hand, foot or jaw—a clear view of hidden

lesions, what a clearing away of the cobwebs of mystery shall we witness! What a relegating to the garret of volumes on diagnosis! What an overhauling of theories and speculations on etiology and prognosis! What a change in forthcoming literature on all branches of scientific dental research! Nor is this mere idle speculation. From various quarters come tidings of successful experiments forestalling Mr. Edison in the line of his special inquiry, so that it seems not extravagant to expect before long a simple electrical appliance to be attached to the dentist's outfit far more indispensable than the electric motor, the electric mouth lamp, the cautery, the mallet or the baking furnace.

How shall we restrain our impatience to get to work with the new appliance? Behold the pyorrhœa alveolaris enthusiast dropping his pen, heedless of splashing ink, and sending post-haste for the patient whom he has burnt oftenest with zinc chloride, argentum nitras, acid sulph., and with nervous haste turning on the X rays to note the exact extent of the reparative process, or locating calcic nodules, pus pockets, galleries, etc. Fancy him reaching after a calcic spicula at the very apex of a root, applying the delicate scaler to the exact spot, undisturbed by any accidental flow of blood or pus, through which the rays continue to shed their light, as before. Behold him locating the bit of protruding wire or broken-off broach, in a root, noting the curve of roots requiring extraction, observing the deposition of granular matter in the abscess from which he has withdrawn his tampon, locating sequestra, detecting exostoses, pulp nodules, necroses, antral engorgements or odontomes. With what facility will he fit crowns to roots, peer into approximal spaces for suspected cavities, examine cervical borders of fillings. Away with carbon paper, and such clumsy aids in securing proper fits of crowns to roots, of crowns to crowns. Farewell to the recording ledger. What need of noting on paper that this root was filled with gold, that one with tin, or the other with chloropercha? The X rays will tell us all about it, nay, more invaluable even than this will be their service—they will tell us what the patient's former dentist, on the next street, in the next town, in the unknown beyond, has done.

In the October, 1886, number of the Cincinnati *Medical and Dental Journal*, the writer of this paper published a whimsical article foreshowing the probable status of dentistry at the end of the twentieth century. An agent is represented as calling upon a dentist offering for sale various patented appliances, one of which he describes in the language here quoted :

"Doctor, this little instrument is called the 'Pocket-Book and Bank Account Detective.' Attached to your chair, it records on this little dial, in characters intelligible to yourself alone, the exact amount of cash in your patient's pocket. By the use of this simple device you are enabled to preserve a conscience void of offense, since your fee need never exceed the patient's ability to pay," etc., etc.

Little did the writer suspect when he wrote the above the announcement, which would in less than ten years be made, that the contents of a purse, concealed in a pocket, could be distinctly photographed.

We can conceive of the consternation of one tempted to suggest the value of the X rays to dentists when he pictures himself seated in the operator's chair, his thoughts concentrated on that "buzzing machine," or that inquisitorial clamp, while the dentist's assistant stealthily turns the X rays on his artfully concealed purse, in order to supply data upon which the busy operator may, later on, assign a fee for the service commensurate with the victim's means. But then, on the other hand, we can conceive of the patient himself armed with a Kodak X Ray apparatus, stealthily peering into the operator's brain with a view to penetrate the centers of thought exposing to view the unrighteous purpose of charging ten dollars for a one dollar filling.

But from the standpoint of mutual advantage to dentist and patient what a glorious future is about to open to the profession. The practical use of the X rays is destined to overcome the patient's reluctance to submit to the dentist's assistant in the matter of diagnosing obscure lesions, since he must perceive that the merest tyro employing the X rays, has an advantage over most experienced diagnostician in ferreting out the cause of trouble.

"Doctor, I have wandering pains about my face and jaw, can't say whether it is neuralgia or toothache," says the suffering patient coming in upon the busy operator.

"Ah, that's not very pleasant," says the operator over his shoulder, without looking round. "John, turn the X rays upon Mrs. Brown's jaw, and report to me what you discover." In a few minutes John reports: "Upper third of left lower second molar pulp decomposed under filling. No periostitis as yet."

"Ah, very good, you may treat the case, John."

Which John accordingly does, to Mrs. Brown's perfect satisfaction. No waste of time whatever. The operator goes tranquilly on with his case in hand leaving Mrs. Brown in John's charge, thinking of the former days when he was interrupted every fifteen minutes during the day by some Mrs. Brown, who wouldn't trust John on any account, and who kept him ten minutes testing the suspected tooth with ice-water, hot gutta-percha, percussion, etc., no one, in the end, being any the wiser. Here comes Mrs. Jackson complaining that her new store teeth are a misfit. Turn on the rays; hand Mrs. Jackson a mirror, and let her point out, if she can, any point at which the plate fails of being in close conjunction with the underlying tissues. Equally applicable are the X rays in detecting faults of articulation.

Welcome the dawn of the glorious day when the new agent, by revealing the perfection of the dentist's work, shall force upon the consciousness of the complainant that an unpaid bill is the only real lingering element of dissatisfaction.

Thus hastily and crudely have we sketched a few of the benefits which the X rays may confer upon our profession. And who shall say that a literal fulfillment is beyond reasonable expectation?

Population of Greater New York.

It is estimated by Dr. Roger S. Tracy, of the New York City Board of Health, that the number of persons living within the limits of "greater New York" is 3,195,059.

A Porcelain Inlay Ground to Fit a Cavity in a Tooth.

BY A. W. HARLAN, M.D., D.D.S., CHICAGO, ILL.

Read before the Mississippi Valley Dental Society, April 16, 1896.

I would not presume to call your attention to such a trivial subject if the whole question of inlays had not occupied such a large place in discussions before societies during the past six or seven years. Rubber inlays, platinum inlays, gold inlays, glass inlays, and baked porcelain inlays, with perhaps some others have had their advocates and do now I suppose in different quarters. The ground porcelain inlay, however, in labial cavities, buccal cavities and some crown cavities, to my mind furnishes us with something more artistic than any of the other methods of making or setting inlays. It is not a necessity to laboriously grind an inlay to fit the cavity in the tooth; this may be done with much greater expedition by preparing the cavity, taking an impression of it in plaster or modeling composition and getting a cast of the cavity, in copper amalgam, or Mellott's metal.

The inlay can be ground to fit the cavity to a hair's breadth, with diamond disks; undercuts and grooves may be made to provide for the flowing of the cement to retain the inlay in position. A tooth or bit of porcelain must be selected at least one shade darker than the moist natural tooth. If a porcelain rod is used it must be capable of retaining a high polish, or the difference in color will be too manifest. The edges of the inlay must not be beveled too much or the cement will show through them. The oxyphosphates are to be preferred for setting inlays in anterior teeth; gutta-percha or sulphur may be used for crown or buccal cavities in bicuspid or molars, or in pulpless teeth. The objection to gutta-percha is its color and the tendency to deterioration in such a small space as exists between an inlay and a cavity wall.

Canada balsam may be used, but it generally requires too much time and it is liable to become yellow from the secretions of the mouth. Nothing is more artistic than a section of a gum tooth with the gum attached to replace a waste spot on the neck of a superior cuspid or superior incisor.

A gold filling always looks badly and the thermal changes are so pronounced that the patient suffers every time the mouth is opened or a drink of water is taken, so that there can be no comparison as to the comfort of such an operation.

To more securely fix the labial inlays a small filling can be built over the edge of the inlay next the gum margins. This is done by grinding from the face of the inlay a depression of such shape that the gold can be adapted to the surface without disturbing the setting of the cement. Before setting an inlay with oxy-phosphate, the cavity must be dried with ammonia fortior, and then with alcohol, and the inlay should be clean and dried in the same manner. After the inlay is set I allow at least half an hour before taking the rubber-dam from the tooth. A coat of copal ether varnish is used to protect it for a day or two. The reason I use porcelain in crown cavities in molars, is, that when the cavities can be made circular, it is easier to fill them; there are no thermal changes and it takes less than to use gold and it will probably last as long as gold.

DISCUSSION.

DR. L. E. CUSTER: The term inlay ordinarily applies to cavities in comparatively plane surfaces, such as the labial surface of an incisor or a crown cavity of a molar. Such a cavity has its margins still intact and of such shape that very little filling out above the cavity margins will be needed for restoration of contour. In such cavities, as we find them, the force of mastication comes either parallel to their surfaces or perpendicularly upon them. There is scarcely a position in the mouth where these inlays can be used but which will receive the force of mastication parallel or perpendicular to its surface. In crown cavities of molars this force is perpendicular to the surface of the inlay so that there is little danger of dislodgment. At this point I would call attention to the importance of making the inlay thick enough to withstand the force of mastication, and since porcelain is quite a good non-conductor of thermal changes, as stated in the paper, it may approach the pulp more nearly than a metallic filling. In incisors, however, the incisive force is parallel

with the labial surface, so that if this force finds purchase upon the inlay there will be danger of dislodgment. Hence the importance of dressing the lower edge, at least flush with the enamel. Of course, where a gum inlay is inserted according to Dr. Thompson's method, the gum of the section must be flush with the gum. While this prominence above the root of the tooth at this point readily allows purchase of a downward force, this would only be accidental. The method of Dr. How should be used if the cavity can be made round without too much loss of enamel, because an inlay ground into a cavity is like a glass stopper, almost hermetically seals the cavity to begin with. In other cases, the process outlined by Dr. Harlan, I think, is the best method.

Before the impression is taken, there should be no undercuts, and it is scarcely necessary to make any afterward if the cavity is not too broad or shallow. Stiff modeling compound or gutta-percha would, I think, be preferable to plaster for this purpose. In cavities reaching to or under the gum, especially should the operator use this method of taking an impression, because it is very difficult to see the edge of the inlay at this point, but the stiff compound easily pushes the gum away in taking the impression.

The point that the inlay should be a shade darker can not be questioned. I think most inlays are too white, and this in thin ones is due, as stated, to the cement. Here is the importance of using a cement as near the tooth-color as possible.

I do not think anything equals cement for a setting material; sulphur and gutta-percha are open to the objection stated, and, besides, have no advantages but which are met as well with cement.

If the cervical border of an inlay is to be protected by a line of gold, this part of the cavity should be prepared with that end in view at the beginning, and care will be necessary in the insertion of the gold. There is another advantage in using gold at this point. We all know that cement is not to be trusted at this point, and the operator will also be more likely to get a better result by filling this part with gold, for the reason that he can see better to joint the inlay.

I object to the use of ammonia as a final wash for such or any cavity which is to receive cement, for the reason that ammonia is the best solvent for cement that we have. It is well to leave the inlay higher than the enamel until the cement has entirely set, and dress at a subsequent sitting. In polishing the ground surface I would recommend the use of a rubber wheel made by Johnson & Lund; it has a material incorporated in it which not only cuts porcelain, but polishes as well. They are only intended for lathe work, but can readily be cut into small wheels and mounted for the engine.

DR. HARLAN: In addition to the specimens of root-filling I here show you, some fifty or sixty operators in Chicago were requested to fill some root canals, using what material they thought best. From these I have found that salol is the poorest material for the purpose and oxychloride of zinc next.

Dental Caries during Pregnancy.

BY H. F. VANDERVOORT, D.D.S.

Read before the Odontological Society of Cincinnati.

It is generally accepted that the teeth of women are more liable to become carious, during pregnancy, and while this condition has been much talked about I do not find anything recorded on the subject showing the relationship between dental caries and pregnancy. I have made no record myself of such cases, but have taken this subject for my paper that I may learn something of a condition or subject that should have our attention. As for dental caries, I believe the chemico-parasitic theory, of which Dr. Miller is the exponent, is generally upheld, at any rate he has shown positively that under certain conditions there is a ferment of a vital or living nature present in the human mouth, and this ferment has the power of self-reproduction. The product of this ferment is lactic acid, which deprives the teeth of their lime salts, and these micro-organisms can live and flourish in the interior of the decalcified mass of tooth struct-

ure. Now we all know how they begin business. They first, of course, find a suitable location, which is, in some fissure, or at some point, not properly cleansed, where they secrete the acid, when the enamel is alternately decalcified, and the dentine reached which is soft, and then assisted by the dental tubuli, the interior of the tooth is very quickly reached. This is a brief description of the theory and shows that the influences are directed from the exterior, but in the case of pregnant females, I think the influences are directed from the exterior and interior both, and at the same time, it is said it is due to the neglect or a lack of attention at that time. That certainly has a great deal to do with it, but we find that the patients suffer from ocular trouble and numerous other nervous disorders, and while the condition generally excites a high nervous tension, or we might say, is very displeasing to the nervous system when the patient is easily excited and worried and is troubled with nausea. Now we find a change in the oral secretions which furnishes a more suitable soil for the development of micro-organisms, and from lack of attention such as proper cleansing and use of suitable mouth-wash the organisms have nothing to interfere with their progress of destruction, and from the nervous condition nature is weakened and is unable to protect the organs from within, it is thought by some that through the demands of the developing fetus the lime salts are abstracted from the teeth; this, however, I do not believe, for my knowledge of the histology of teeth does not show any place of absorbing the lime salts from them or how carried from the teeth to the fetus, it may be done, yet since the teeth receive nutrition from the blood it would seem that nature was cruel indeed to cease giving nutrition and even rob them of so important a part. It is also thought that if the teeth were deprived of nutrition other bones would suffer too, has it been proven they do not? I think, probably, they do, but on account of the predisposition of the teeth to caries they suffer most. Now, to conclude, I will say the family physician generally knows of the condition first and I have avoided mention of treatment, for generally when we are called on, we only have to treat acute conditions and the treatment would be governed by the case in hand.

Michigan State Board of Examiners in Dentistry.

OFFICERS: A. T. Metcalf, D.D.S., President, Battle Creek; H. K. Lathrop, Jr., D.D.S., Treasurer, Detroit; Geo. H. Mosher, D.D.S., Secretary, Jackson.

THE MICHIGAN DENTAL LAW.

The people of the State of Michigan enact as follows:

SECTION 1. That it shall hereafter be unlawful for any person to practice dentistry in this State unless such person has received a certificate of qualification from the Board of Examiners provided by this act; *Provided*, That the provisions of this act shall in no way apply to or affect any person who is now located and lawfully in actual practice in this State; *Provided further*, That a certificate shall be issued by said Board of Examiners to any one who has received a diploma from the faculty of a reputable dental college, duly incorporated under the laws of this or some other State of the United States, with a course of instruction and practice fully equal or equivalent to that of the college of dental surgery of the University of Michigan.

SEC. 2. Said Board of Examiners shall be appointed by the Governor of this State, and shall consist of three practical dentists who shall be regular graduates of a reputable dental college, duly incorporated under the laws of this State or some other State of the United States, or otherwise possess the necessary qualifications contemplated by this act.

SEC. 3. Each member of this Board of Examiners shall serve for a term of three years, and until his successor is duly appointed and qualified; except in the case of the first Board, the members thereof shall serve respectively one, two and three years as specified in the appointment of the Governor.

SEC. 4. The Board of Examiners shall be organized as follows: The member having but one year to serve shall be president of the Board; the one having two years, shall be treasurer, and the one having three years, shall be secretary. The treasurer shall make and file with the Secretary of State a good and sufficient bond to the people of the State of Michigan, in the penal sum of one thousand dollars, conditioned that he will well and truly

pay over all moneys received by him as such treasurer, in compliance with the provisions of this act and otherwise faithfully discharge the duties of his office.

SEC. 5. The Board of Examiners shall meet at least once in each year, for the purpose of examining applicants, after having given, personally or by mail, thirty days' written or printed notice to each practicing dentist in the State who had filed his name and address with the secretary of said Board. The said Board is authorized to incur all necessary expenses in the prompt and efficient discharge of its duties, and pay the same with any moneys in the hands of its treasurer.

SEC. 6. Each member of said Board shall qualify by taking the oath of office prescribed by the Constitution of this State, and filing the same with the Secretary of State before entering upon the duties of his office. Should a vacancy occur in said Board the Governor of this State shall fill the same by appointment.

SEC. 7. Any member of said Board of Examiners may, when the Board is not in session, examine applicants, and in case any applicant is found competent, grant a license to him to practice dentistry in this State until the next meeting of said Board, and no longer. Each applicant so examined shall pay the sum of three dollars. *Provided*, That no member of the said Board shall grant a license to any one who has been rejected on examination by the Board.

SEC. 8. Should any member of said Board be unable to attend at the meeting of the Board for the examination of applicants, he may appoint in writing a substitute, who shall have the same power on the examination that the member appointing him would have, if present. *Provided*, Such substitute be a person eligible to be a member of said Board within the provisions of this act. *And provided further*, That the appointment of such substitute be by and with the written consent of the other members of the Board.

SEC. 9. Each applicant for examination by the Board shall pay into the treasury of the Board the sum of ten dollars, which shall constitute a fund to defray the expenses of the Board; and each member of the Board shall receive therefrom the sum of three

dollars per day for services rendered as such examiner. The Board shall keep a list of the names of all persons to whom licenses have been granted under the provisions of this act, and also of all persons practicing dentistry in this State in a book provided for that purpose, with the names arranged in alphabetical order.

SEC. 10. Any sum in excess of one hundred dollars which, under the provisions of this act, may accumulate in the treasury of said Board, shall be paid by the treasurer thereof into the treasury of this State.

SEC. 11. Each person now engaged in the practice of dentistry in this State shall, within ninety days after this act take effect, send an affidavit to the secretary of the Board setting forth his name, place of business, post-office address, the length of time he has been engaged in practice in this State, and if a graduate of a dental college, state the name of the same, and also pay to the treasurer of said Board the sum of twenty-five cents, and on failure to comply with said provisions of this section he shall be required to appear and be examined by said Board.

(NOTE.—The above Section 11, was in no way altered or changed by the amendments of 1891, and applied only to persons in practice at the time of the passage of the original act in 1883.)

SEC. 12. Any person who practices dentistry in this State, in violation of the provisions of this act, shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be fined not less than twenty-five dollars, nor more than one hundred dollars, or sentenced to imprisonment in the county jail for a period not exceeding ninety days, or both, such fine and imprisonment is in the discretion of the court. *Provided*, That nothing in this act shall be construed so as to interfere with physicians and surgeons in their practice as such.

SEC. 13. For the purposes of instruction students may be employed to assist in dental offices, and in the College of Dental Surgery of the University of Michigan, under the immediate observation and advice of the legal proprietors and professors thereof, but no person not legally qualified and registered under this act shall assume the charge and management of any dental office, or the responsibility of deciding upon or the doing of dentistry at any private residence or elsewhere.

SEC. 14. All persons not now registered, who desire to practice dentistry in this State, shall apply to the secretary of the Board for registration. Each person seeking registration by virtue of a diploma shall send an affidavit to the secretary of the Board, setting forth his name, place of business, post-office address, the date of his graduation, and the name of the dental school from which graduated, and a registration fee of three dollars.

All applicants found qualified under this act shall be properly and promptly registered by the secretary of the Board.

SEC. 15. The secretary of said Board shall, on the first day of June of each year hereafter, file an annual report with the Secretary of State, showing the number of applicants for examination, the number who passed said examination and received a license to practice, the amount of the fees received from the applicants from such licenses granted, and the amount received by each member for his expenses and services.

Approved May 10, 1893.

SELECTIONS.

How Carborundum is Made.

It could not have been made at all—this compound of carbon and silicon which is coming into such universal use as an abrasive—were it not for the electric furnace, with its degree of heat that was quite undreamed of only a few years ago. Discovered by accident in experiments on electric smelting, it is now made in large quantities, and its manufacture is one of the first to employ the electric energy generated by the world-famous power-plant at Niagara. We quote a few paragraphs, telling how this power is utilized, from *The Electrical World* October 26th. The crude materials, we are told at the outset, are simple enough, being nothing but coke, sand, salt, and sawdust, which are first thoroughly ground and mixed. We now let the article speak for itself:

“The four crude materials having been thus thoroughly mixed, the product is conveyed to the electrical furnaces, situated

in an adjoining building, and which have the appearance of rough and apparently crude, oblong brick boxes, made without cement, mortar or other binding materials. Provision is made for five of these boxes, which extend down one side of the large spacious building, each of them measuring about 15 feet in length by 7 feet in width and the same in height. In the center of each end is placed a large bronze plate, and these are connected by means of four large copper cables to massive copper bars extending under the floor at either end of the furnaces. Connecting with the inner surfaces of the bronze plates are 120 carbon rods, 60 to each plate. These carbon rods are three inches in diameter and something over two feet in length, and are so placed as to pass through the end walls of the brick box or furnace, projecting into the interior and toward each other, thus constituting the terminals. Into this rectangular brick box the mixture that has been prepared in the stock room is introduced, about ten tons constituting a charge, and through the center of the mass of mixed materials is placed a core or cylinder of granules of crushed coke extending from the carbon rods at one end of the furnace to those at the other end, a perfect electrical connection through the furnace, by means of the bronze plates, carbon rods, and the core, being thus made."

Into this furnace is turned a powerful electric current of 1,000 horse-power, all of which is transformed within it into heat. The results are thus described :

" A short time, perhaps two hours, after the turning on of the current, gases begin to escape through the crevices of the brick walls of the furnace, and, being ignited, burn with a lambent blue flame. As the process continues the outer walls and top of the mass in the furnace slowly rises in temperature through the transmission of the intense heat from the core, the entire top of the mass being red-hot in about 12 hours. After the current has remained on for the period of 24 hours, or until such time as the workman in charge recognizes as sufficient, it is switched off in the transformer building, the flexible cables are disconnected from the bronze plates and others are connected with the plates of the next furnace in the series of five, which in turn are carried through the same operation.

“One end of the first furnace is then removed and a cross-section through its center exposed, thus permitting of a ready inspection of the results of the operation. In the center is the granular core, in the same position in which it was originally placed, but it is now purified of all foreign substances. It is now pure carbon and has lost about one-fourth of its weight; this loss represents the volatilized impurities. The presence of grains of graphite disseminated throughout its mass indicate that its temperature must have been near 7,000 degrees F.—the point of graphic formation. Surrounding the core in the form of a cylinder is a beautiful crystalline formation, the crystals being constructed on lines radiating from the center. The crystals in immediate contact with the core are looped or built together into one concrete mass; as the distance from the core is increased, the size of the crystals diminishes rapidly, until at about 15 inches all crystallization ceases and an amorphous material is encountered, of a whitish-gray color, for a distance of two inches, when a sudden change occurs to a black mass composed of the original mixture, now held together in a cemented state by the fusion of the salt. The crystalline and amorphous material, lying between the core and the outer black mass is carbide of silicon, being composed of equal atoms of carbon and silicon. About two tons of carborundum is produced in one furnace run, and to prepare it for the market it is first passed under heavy iron rolls for the purpose of crushing apart and separating the individual crystals, after which it is treated with an acid and water-bath to remove solubles. It is then dried and sifted, to separate the various sizes.”

Of the uses of the compound thus made—which, it may be said in passing, is so hard that it will scratch any other substance except the diamond—we are told, at the close of the article:

“Owing to the limited facilities heretofore existing, the production of carborundum has been so small—not over 300 pounds per day—as to practically restrict its uses to the finer trades, such as the dental and manufacturing jewelers’ trades, fine-tool grinding, pearl-grinding and kindred industries. The development in the dental trade especially has been remarkable, and in the form of disks, lathe and engine wheels and cloth-finishing strips,

carborundum is rapidly displacing all other abrasive substances in this important industry, not only in the United States but throughout Europe."—*The Literary Digest*.

• Role of the Nerves in the Mind Cure.

The influence of the mind over the body as a factor in determining certain phases of health or sickness is acknowledged by all physicians just as they acknowledge the potency of any other agency, whether external, as exercise, or internal, as opium, aloes or any other drug. They simply object to the adoption of any one of these agencies to the utter exclusion of all others, whether the favored agency be mental action, muscular movement, or some special drug. So far as the action of the mind is effective, it is so through that remarkable system of nerves called the "great sympathetic." The functions of these nerves and their influence in controlling the physical organization is well set forth by Dr. A. J. Park, of Chicago, in an essay on "Mind, Prayer, and the Supernatural in Healing," which he first read at a meeting of "The Round Table" in that city. We quote the part in which he treats of this particular subject:

"The class of nerves involved in such derangements as affect the bodily organs is the great sympathetic system, which has dots as reservoirs (called ganglions) all through the human organism where nerve force and nerve currents are generated and stored, and by its network of fibers constituting a telegraphic system of infinite sensibility which dwarfs all human contrivances and preserves a uniform and equal degree of temperature and sensibility throughout the body.

"The nerves of sensation and the nerves of motion occupy a very subordinate position, though closely allied to the sympathetic system. The nerves of sensation are the messengers which convey to the sensorium every sensation and impression, pleasant or painful, that is made upon the cutaneous shield; and every impression thus received and transmitted carries with it a voice from the great sympathetic. Hence, it will appear clear, upon a little

reflection, that the sympathetic nervous system presides like a monarch over the feelings, emotions, and sensations of every human being; that, as its uses and powers are vital to life, so are its normal functions essential to mental equipoise.

“The absolute and despotic control that the sympathetic system exercises over the physical organization is so perfectly clear and well known to every observer that the recital of the phenomena in the vast and countless series of its manifestations is unnecessary. We are all practically aware of the fact that digestion is promptly arrested upon the receipt of bad news—the appetite at once disappears, it ceases, and the whole system feels the effect of the depressing impulse, the mental or spiritual wave which lowers the vital thermometer.

“Fear not only suspends the digestive functions, but arrests the formation of the secretions upon which digestion depends. A sudden fright frequently paralyzes the heart beyond recovery; whereas, a pleasant and pleasing message soothes and gently excites the whole glandular system, increases the secretions, aids digestion, and sends a thrill of joy to the sensorium, which diffuses the glad tidings to every nerve fibril in the complex organization.

“In view of these physiological and anatomical facts, it is perfectly clear how it is that the method of cure known as massage, or the Swedish movement cure, cheerful conversation and earnest prayer, send to the sensorium of the invalid a new and fresh array of impressions. A vigorous and energetic rubbing of the body excites the capillary system, imparts renewed life to dormant nerves, invigorates the expiring and lifeless cells, enables the weak and flagging energies of the system to throw off effete matter, revivifies the sluggish circulation, increases the heart's action, and arouses the flickering and vacillating will up to the level of manly resolution and higher hopes—and herein lies the whole secret of the so-called faith cures.”

THE fresh juice of the poppy plant applied to recent bee-stings is said to give immediate relief and prevent inflammation.

A Blow at the Germ Theory.

The highest medical authorities are beginning to doubt the germ theory, and Dr. Laurie's latest discovery will make them more skeptical than before. Dr. Laurie claims that there is no parasite in the blood in malaria. If this fact be established it not only goes far to destroy the excellent reputation which the phagocytes enjoy for promenading the veins and devouring the malaria germ wherever found, but it is decidedly unfavorable to the whole germ theory of disease. Malaria was supposed to be the one disease in which the action of the bacillus was said to be undoubted, and if it is disproved here it will be difficult to sustain it elsewhere.

Baby's Rights.

Babies are human, and, like grown-up human beings, have their rights. But few people appear to think so. How would any man enjoy having nearly every one who entered his house tickle him in the ribs and "keechee" at him and not expect him to protest against such treatment. Yet in such way are most babies treated to make them laugh; and because they are unable to speak they have to endure it. Babies should be kept free from all nervous excitement and as quiet as possible. They should not be made to laugh immoderately, because it induces wind to gather within the stomach, and many a violent fit of crying is occasioned thereby.

When our second child was an infant of some five months, we had, one day, a house full of company. We were busied with waiting upon them, and the baby was passed about from one to another, each guest trying to outdo the last in making him laugh.

We did not find time to pay much attention to our child until the company had left, when we found him limp and weak, pulse a feeble flutter, and a cold perspiration covering his body.

The babe had not been fed for some time, but would not nurse, only lying perfectly motionless, with wide-open eyes. Becoming

alarmed, a doctor was called, who said, "The child has the appearance of having passed through some undue excitement, which has brought on nervous collapse."

We told the physician the events of the afternoon, and he thought that sufficiently accounted for the baby's condition. After that night of anxious watching and our baby's slow recovery, we forbade all tickling and undue tossing of him.

Perhaps few children would have been thrown into the same condition, yet those who are of the nervous temperament should be protected against such danger.

What is the Possible Minimum Death Rate?

The late Dr. Parkes fixed 17 per 1,000 as the "mortality incident to human nature," and in his time—the infancy of hygiene and sanitation—even that figure seemed Utopian. But what shall it be now fixed at in view of the reduced rate in Greater London? In 1894 the death rate had fallen from 20.5 for the decennium, 1881-90, to 17.7 per 1,000; and last year, 1895, when the mean was 19.7, there were sanitary areas in the great metropolis with the following figures: Wandsworth, 14.8; Lee, 14.5; Lewisham, 14.4; Stoke Newington, 13.4, and Hampstead, 12.

The Hygienic Importance of Amusements.

At the recent annual banquet of the French Societe de Hygiene, one speaker dwelt upon the absolute necessity of providing amusements for the masses as a hygienic measure. This was better understood in the past than now, and entertainments were provided for the people by the State. He mentioned an instance in his own experience, of a regiment whose commanding officer allowed his men to sing on the march. Health, spirits and strength flourished, and the severest exercises were play to the light-hearted men. The officer was changed and the new-comer stopped the singing, when the men drooped and the sick list grew long.

The Official Languages at the International Medical Congress at Moscow in 1897.

Yielding to the universal protest, the Committee of Management have announced that English and German will also be accepted as official languages, with French and Russian.

Second Pan-American Medical Congress.

The Committee on Organization of the Second Pan-American Medical Congress at Mexico City, Mexico, have notified, through their Secretary, Dr. Eduardo Liceaga, Dr. H. L. E. Johnson that he had been appointed the Vice-President of the Congress for the District of Columbia. Local organization will commence at once.

Medical College Association.

The Association of American Medical Colleges held its annual meeting in Atlanta, May 4th. The business transacted was formal and routine. The requirements for membership remain the same, namely: Preliminary examinations in 1, English; 2, mathematics; 3, physics; 4, Latin and four years of study in a medical college, at least six months each year. Dr. James M. Bodine, of Louisville, Ky., was elected president, and Dr. Bayard Holmes, of Chicago, re-elected secretary. The work of the Committee on Syllabus was accepted and the committee continued.

Ohio's Tobacco Law.

The measure recently introduced into the Ohio Legislature to prohibit the use and to provide a remedy for the sale of tobacco in any form to minors was passed by unanimous vote of that body and is now a law.

Heroic Treatment for Drunkards.

An army surgeon is reported as having administered the following treatment in cases of drunkenness among the soldiers of his command, with gratifying results: Every man who has reported at the hospital in a stage of simple alcoholism is treated as a case of alcoholic poisoning, taken immediately to the operating-room, his stomach emptied by the use of a stomach-pump, and thoroughly washed out with warm 2 percent soda solution. After this he is given a bowl of hot beef extract, with cayenne pepper, and allowed an hour's rest, after which he is perfectly able to do his duty.

The treatment is energetic, but an excellent means of ridding the army post hospital of that class of periodical drunkards who regularly report for treatment and a little rest after the usual pay-day spree.

The Retro Buccal Method of Exposing the Third Branch of the Trigemini.

The author reports two cases operated by this method.

The operation is not dangerous, is simple, and gives the least amount of interference with function. In a few days the patients were well, and only a very fine linear scar was left on the cheek; the facial nerve, Steno's duct and the muscles of mastication were not injured.

In the second case he succeeded, with the aid of Thiersch's nerve curling, in eliminating the infra-maxillary nerve, even in its intracranial course, through the Gasserian ganglion, together with a portion of the latter. Both operations illustrated the possibility of eliminating the trigeminal nerve, even intracranially, by an extracranial operation.—*Kronlein (Beitrag zur klin. Chir., XIV, No. 3, p. 725.)*

This seems an uncertain and unscientific method of destroying the Gasserian ganglion. Even though it has been successful

in these two instances there will undoubtedly be many others where the nerve will give way during the curling, leaving a well-defined stump, which, in all probability, will become the point of fixed pain, necessitating the Krause-Hartley operation finally.
—*American Medico-Surgical Bulletin.*

Higher Medical Education.

Dr. R. B. Barron, of Macon, delivered the "Orator's Address." He dwelt upon and pleaded for higher medical education. Relative to practicing medicine purely for money, he said that money with the true physician was a secondary consideration; that the real incentive for the best work with those practitioners who achieve success was that broad humanitarianism which impelled with resistless force the commissioned agents of God Almighty to relieve the suffering, to stay the pangs of agonizing pain, to fight to the bitter end humanity's implacable and unconquerable enemy—death—regardless of any other consideration.

A Case of Unusual Speech Defect.

Dr. G. Hudson Makuen, of Philadelphia, presented a young law student who had a marked retraction of the lower jaw, which destroyed the character of the labial sounds. This could only be overcome, he said, by long practice in protruding the lower jaw when speaking. The soft palate was much relaxed, and had been impeded in its action by the existence of adenoid growths. In trying to say "s," instead of the palate rising to the roof of the mouth, it remained down on the tongue. He considered the adenoid thickening in the pharynx as the original cause of the defect in the speech. The patient had received careful instruction as to the best method of overcoming the difficulty of speech, and he demonstrated clearly the marked improvement that had already resulted from persistent practice along this line.

How to Sterilize Cotton.

A rather ingenious plan for sterilizing cotton is referred to in a French contemporary. A piece of cotton is taken, twisted on a stick or a piece of wood, and dipped into a saturated alcoholic solution of boracic acid for a moment or so. It is then withdrawn from the solution, and a light is applied to it, as the result of which the alcohol burns out, while the boracic acid prevents the cotton from burning. Five seconds are enough; as soon as the flame turns green it is extinguished. The cotton remains white, dry, warm, but absolutely sterilized.—*Med. Press and Circular.*

Treatment of Alcoholism by Strychnine Nitrate.

Dr. Breed thinks that we have in nitrate of strychnine a remedy for alcoholism that is safer, and at the same time gives as good results as the gold-cure, Keeley cure, silver-ash cure, etc. It is a treatment that is no secret, and can be used by the profession generally. This drug removes the desire for alcoholic stimulation for, as yet, an undetermined length of time without the least effort on the part of the patient; though, of course, it cannot oblige a man to abstain if he is determined to continue the use of alcohol. Nitrate of strychnine removes the distress and gnawing at the epigastrium so common upon the withdrawal of alcohol; it tones up the nervous system and allays tremulousness and uncertainty of voluntary motions; it restores the appetite and general physical vigor and is, incidentally, a good heart tonic. These latter effects restore hope and self-confidence in the patient, and these in turn aid much in his recovery.—*Medical News.*

IN compliance with the excise law, the sale of brandy drops, or other confections containing intoxicating liquors, has been ordered discontinued in New York by the police.

Insomnia.

Insomnia is really a mere symptom, and will no more be treated *per se* by the intelligent practitioner than the eruption of an infectious fever, or the diarrhœa of typhoid fever. The great duty of the medical man is to trace it to its causes and its associations, and to deal with these. If it follows influenza, it must be regarded, like all the other *sequelæ* of that protean disease, with some patience, but with much conviction that it will yield, sooner or later, to sound treatment. A very important point is to ascertain whether the insomnia is attended with pyrexia or otherwise, for of all means of producing restlessness, and marring the night's repose an increase of two or three degrees in the temperature is among the most effective. Apart from general pyrexia, it is well to note all local peculiarities of heat, whether in the direction of excess or defect—cold feet, a hot bed, etc.—and to deal with them accordingly. It is, of course, equally important to ascertain any error of function that can reasonably be associated with such a symptom. Such errors may frequently be found in the gastric or renal or hepatic functions, and their removal will quickly alter the whole complexion of the patient's life both by night and by day.—*Lancet*.

Aluminum in the United States.

The *Iron Age* estimates the American output of aluminum in 1895 at 850,000 pounds, and believes that the production of the present year will reach the imposing total of 6,000 pounds per day, or over 2,000,000 pounds.

A New Dressing in Surgery.

Dr. Welch, the bacteriologist of the Johns Hopkins Hospital, has demonstrated that germs will not grow in the immediate vicinity of silver. His discovery is made use of in the dressing of aseptic surgical wounds, by placing silver foil immediately in contact with the closed incision in sheets about four inches square. The other aseptic dressings are then applied.—*Medical Times*.

How Austria Deals with Drunkards.

Austria proposes to deal with persistent drunkards by treating them as mentally incapable, and detaining them in special retreats for a term of two years. They may go in of their own accord or on compulsion, but can not leave at will until their term has expired, except in certain cases on probation. Persons may be sent to the retreat either by order of the magistrate or on the petition of the parents or children, or of the husband and wife, or trustees, or of the chief of a lunatic asylum in which a drunkard may be detained. Inebriates may further be assigned to retreats by the action of the public prosecutor, or by the mayor of the town or village in which the habitual drunkard resides. In all cases the inebriate must be legally tried and convicted, the court being bound to hear witnesses, including the drunkard himself, as well as the doctors, more especially experts on mental diseases. The term of detention will be generally for two years, but the patient may be released on leave after one year, but will be confined again in case he relapses into his former bad habits.—*Albany Med. Annals.*

Care of the Hair.

“If you want to keep your hair in good condition you should remember to brush, brush, brush and brush again,” says one who has made the care of the hair a life study. “Brushing is absolutely the only means one can use to make the hair glossy, clean and perfectly healthy. Women often ask me what to use to increase the growth of their hair. The hair is very obedient to the treatment it receives, and if that is good and regular, and one is in good health, the hair needs no tonic.”

“To what do you attribute baldness?” she was asked.

“It is almost an unfailing sign of intellectual activity. Brain workers are most liable to it. People of the laboring classes who gain their bread with their hands are generally exempt from baldness until they have passed beyond the sixty-

year mark. Just why this is so, why the workingman who takes no particular care of his head-thatch would be able to preserve it longer than the man who spends much time in having it brushed and shampooed, is a mystery not yet explained. The mane of a thoroughbred horse even is thinner than that on the neck of his brother who drags a dray or horse-car."—*N. Y. Tribune.*

Composition on Physiology.

The following composition by a twelve-year-old school boy was the cause of his being recommended to take a special course in physiology next term. The theme given him was "breath."

"Breath is made of air. We always breathe with our lungs, and sometimes with our livers, except at night, when our breath keeps life going through our noses while we are asleep. If it wasn't for our breath we should die whenever we slept. Boys that stay in a room all day should not breathe; they should wait till they get outdoors. For a lot of boys staying in a room make carbonic acid, and carbonic acid is more poisonous than mad dogs, though not just the same way. It does not bite; but that's no matter as long as it kills you."—*British Medico-Chirurgical Journal.*

Slobbering.

Dr. Sauchez de Silvera, we learn from *La Sperimentale*, has not thought this homely subject unworthy of study, and he has written an essay upon it. From the observations of Dr. Couetoux, of Nantes, and his own, he concludes that healthy infants never dribble; that infants which dribble only in the day time, though apparently in good health, have their digestive functions impaired; that infants which dribble at night are suffering from obstruction of nasal respiration to a greater or less degree; that these phenomena are altogether unconnected with dentition.

Good Breeding.

In good breeding, which differs, if at all, from high breeding only as it gracefully remembers the rights of others, rather than gracefully insists on its own rights, I discover no special connection with wealth or birth; but rather that it lies in human nature itself, and is due from all men toward all men.—*Thomas Carlyle.*

Chloroform Anæsthesia Dangerous to Meat-Eaters.

Some time ago Dr. Lauder Brunton called attention to the fact that death from chloroform anæsthesia is probably due, not to the chloroform itself, but to the fact that chloroform arrests the elimination of tissue poisons, and that death is directly the result of the action of these poisons rather than of the chloroform. Dr. Brunton cited the fact that death from chloroform anæsthesia is very rare in India, while it is becoming more and more common in England, which fact he attributes to the increasing use of meat as an article of diet in Great Britain.

Chloroform has long been a popular anæsthetic in Edinburgh, but recently deaths from its use in that city have been very frequent. It is also noticed that gout is becoming very common. Both these circumstances are doubtless due to the increased consumption of meat resulting from the large importation of low-priced refrigerator meat.—*Modern Medicine.*

Onions.

Onions are almost the best nervine known. No medicine is so useful in cases of nervous prostration, and there is nothing else that will so quickly relieve and tone up a worn-out system. Onions are useful in all cases of coughs, colds and influenza; in consumption, insomnia, hydrophobia, scurvy, gravel, kidney and liver complaints. Eaten every other day they soon have a clearing and whitening effect upon the complexion.—*Exchange.*

A QUART of milk, three-quarters of a pound of moderately fat beef—sirloin steak, for instance—and five ounces of wheat flour, all contain about the same amount of nutritive material; but we pay different prices for them, and they have different values for nutriment. The milk comes nearest to being a perfect food. It contains all of the different kinds of nutritive materials that the body needs. Bread made from wheat flour will support life. It contains all the necessary ingredients for nourishment, but not in proportions best adapted for ordinary use. A man might live on beef alone, but it would be a very one-sided and imperfect diet. But meat and bread together make the essentials of a healthful diet. Such are the facts of experience. The advancing science of later years explains them. This explanation takes into account, not simply quantities of meat and bread and milk and other materials which we eat, but also the nutritive ingredients or “nutrients” which they contain.—*Sanitarian*.

COMMENCEMENTS.

Missouri Dental College.

The Dental Department of Washington University—thirty-first annual commencement exercises of the Missouri Dental College were held in St. Louis, Saturday, April 25, 1896. The following graduates received their diplomas:

NAME.	RESIDENCE.	NAME.	RESIDENCE.
William Bruce Bagbe.....	Missouri	George Hart Owen.....	Missouri
Harry King Barnett.....	Illinois	Alonzo William Rue.....	Illinois
Edgar Herbert Bragg.....	Missouri	Edward Guernsey Simmons..	Missouri
Peter Thomas Cunningham..	Missouri	Elmore Hiram Smith.....	Missouri
Alfred Darst Fuller.....	Missouri	John Mead Sloan.....	Missouri
Max Fendler.....	Missouri	Nathaniel Benjamin Stanza..	Missouri
Harry Moll Fisher.....	Ohio	Willam Morris Tuttle.....	Missouri
Jaime Fraer Gwinner.....	California	Walter Edgar Urban.....	Missouri
Charles Joseph Garcia.....	Missouri	Stephen Huff Voyles.....	Indiana
William Eugene Heatherly..	Missouri	August Jos Waldschmidt....	Germany
Charles Ernst Edw Hesemann..	Illinois	Charles Henry Wharton.....	Iowa
Eugene Jordan Hume.....	Missouri	William Simpson Wallace....	Illinois
Henry LeGrand Jones.....	Missouri	Robert Daniel Woelk.....	Illinois
Henry Frank William Koch..	Missouri	Florian John Wieser.....	Illinois

University of Maryland—Department of Dental Surgery.

The annual commencement exercises of the Department of Dental Surgery of the University of Maryland were held at the Academy of Music, Baltimore, Md., on Wednesday, April 1, 1896, at 3 P. M.

The address to the graduates was delivered by Rev. Timothy P. Frost, D. D., and the class oration by Harley B. Lindsay, D. D. S.

The number of matriculates was two hundred and four.

The degree of D. D. S. was conferred on the following graduates by Bernard Carter, Esq., Provost of the University :

NAME.	RESIDENCE.	NAME.	RESIDENCE.
H T Armstrong	New Brunswick	J M Greenough	Jamaica, W I
William J Baker	Pennsylvania	Wm H Haller	Virginia
Mabrey B Bell	Maryland	Vernon Hiscox	Connecticut
John P Best	South Carolina	William D Hopkins	Maryland
Cornelius H Bishop	New York	Andrew Huffman	West Virginia
Barnet Bliss	Russia	Clarence L Jones	Ohio
D L Boozer jr, B S	South Carolina	Antonio S La Rue	Connecticut
George L Bressler	Pennsylvania	H B Lindsay, A B	South Carolina
George G F Brook	California	T David MacLeod	Nova Scotia
Samuel O Brookes	Virginia	Willie J McMinn	North Carolina
Marcus Chargin	Russia	Austin H Mowel	New York
Robert B Cockrill	Montana	John C B Patrick	South Carolina
Robert L Combs	Texas	James W Pierce	Alabama
W F Connally	Georgia	Charles H Perdue	Georgia
Webster H Cooper	North Carolina	Samuel A Shadrach	Virginia
John Sidney Couret	Louisiana	Richard L Simpson	Virginia
Howard Eastman	Maryland	Thomas McC Smith	North Carolina
John J Ellis	South Carolina	Bennie E Thomas	Texas
E J Etheredge	South Carolina	J Cromwell Truby	Pennsylvania
Henry Frantz	Illinois	Abraham Weinberg	South Carolina
Elias J Friedland	Russia	Albert F Willets	Maine

Chicago Northwestern University—Dental Department.

The annual commencement of the Dental Department of the North Western University was held at the Auditorium Recital Hall, Chicago, April 24, 1896, at 2 o'clock, P. M.

The degree of D. D. S. was conferred on the following persons.

Maurice P Apmadoc	Charles W Groff	Harry R Rebman
Mungo Barr	A J Hockings	J B Simpson
Charles J Beers	Harry H Howard	E S Tebbetts
Isaac Burton	Adolph F Kortebein	Fredus A Thurston
C A Cheney	Frank T Long	Jose F Valentin
Arthur R Church	J E McIntosh	George Y Wilson
Arthur M Corbin	Will H McKelvie	Orville W Wilson
George P Doolittle	J Frank Moore	Charles H Wise
Henry L Garrison	Fred B Noyes	Ernest A Worsdell
George Gillespie	H A Potts	C H Wright

University of Buffalo—Dental Department.

The fourth annual commencement exercises of the Dental Department of the University of Buffalo was held, in connection with the Departments of Medicine and Pharmacy, in Music Hall, in the city of Buffalo, on the evening of Tuesday, May 5, 1896.

The oral examinations, before the Board of Curators, were held during the day, and the members of the Senior Class, who had passed the Faculty examinations, were unanimously recommended to the Council of the University for the degree of Doctor of Dental Surgery, which was accordingly conferred by the Chancellor.

The number of matriculates for the session was one hundred and eighty-six.

The number of graduates was thirty-six, as follows :

NAME.	RESIDENCE.	NAME.	RESIDENCE.
Arthur C Bean.....	New York	Eugene L Martin.....	New York
Edward W Bridgman.....	New York	Emmet E Mills.....	Pennsylvania
Charles K Buell.....	New York	Wilhelm Muller.....	Germany
Sidney W Bunting.....	Canada	Wesley A Parish.....	New York
John H Cameron.....	New York	James M Raimi.....	New York
Viotor A Clapp.....	New York	Richard B Redwan.....	New York
Edmund T Comstock.....	New York	Lewis P Sanford.....	New York
Horace S Cutler.....	New York	Henry F Squire.....	New York
Charles S Decker.....	New York	Peter A Stadlinger.....	New York
William B Dickson.....	Canada	Earl S Starkweather.....	New York
Carl S Eaton.....	New York	Walter S Stevenson.....	New York
Charles E Featherstone.....	Canada	Charles A Stewart.....	New York
James H Gillam.....	Canada	Jay G Van Valkenburgh.....	New York
Thomas G Gibson.....	Canada	Henry D Warren.....	New York
Ralfe M Harlan.....	California	Harry C Webb.....	New York
Arthur Kidder.....	New York	Carl J Woodworth.....	New York
Frank G Lugsdin.....	Canada	Douglas H Young.....	New York
Herbert J Lyle.....	Canada	Paul B H Zuedenfeldt.....	Germany

Cincinnati Academy of Dentistry.

Some two or three months ago a new Dental Society was organized in Cincinnati with the above caption. It holds its meetings on the fourth Monday evening of each month. At the last meeting the officers were elected for the ensuing year :

President, W. T. McLean, M. D., D. D. S.; Vice-president, A. I. F. Buxbaum, D. D. S., M. D.; Secretary, Wm. Lockman, jr.; Treasurer, J. F. Clayton.

Out of the one hundred and forty dentists in Cincinnati there ought to be two good dental societies. Will not each be a stimulus to the other? It is to be hoped that this will be the result.

Indiana Dental College.

The seventeenth annual commencement exercises of the Indiana Dental College were held in the Grand Opera House, Indianapolis, Ind., on Tuesday evening, March 24, 1896.

The annual address was delivered by Judge W. P. Fishback.

The number of matriculates for the session was one hundred and fifty-seven.

Dr. G. E. Hunt presented diplomas to the following graduates:

NAME.	RESIDENCE.	NAME.	RESIDENCE.
B M Ackman.....	Indiana	E H Kreis.....	Illinois
P D Ballou.....	Indiana	W M Kunkle.....	Indiana
Jennie H Becker.....	Indiana	M E Little.....	Indiana
T T Brand.....	Ohio	H T Locy.....	Indiana
L R Booze.....	Indiana	H R Martin.....	Ohio
J Q Byram.....	Indiana	E S Miller.....	Indiana
R M Callaway.....	Indiana	H B M Nutt.....	Indiana
O C Carr.....	Michigan	Hiram Porter.....	Indiana
F B Cochran.....	Indiana	E G Prall.....	Indiana
G R Conover.....	Indiana	T C Rutledge.....	Indiana
R E Culver.....	Indiana	W P Shortridge.....	Indiana
B H Edwards.....	Ohio	M V Smith.....	Indiana
A F Eiteljorg.....	Indiana	J W Vance.....	Illinois
W M Ellison.....	Indiana	C C Van Scoyoc.....	Illinois
J F Gant.....	Indiana	J C Vaughn.....	Indiana
M M Gilbert.....	Indiana	R S Viberg.....	Indiana
E G Glasgow.....	Indiana	W E Walker.....	Ohio
J R Harrington.....	Indiana	H D Weller.....	Ohio
Sara Harris.....	Indiana	G N Wickwire.....	Indiana
W F Huddle.....	Indiana	V V Williams.....	Indiana
E S Hunt.....	Indiana	T J Wilson.....	Indiana
R M John.....	Indiana		

Baltimore College of Dental Surgery.

The fifty-sixth annual commencement exercises of the Baltimore College of Dental Surgery was held at the Lyceum Theater, Baltimore, Md., on Friday evening, March 20, 1896.

The annual oration was delivered by Rev. Edward H. Robbins, and the valedictory by E. F. Early, of North Carolina.

The number of matriculates for the session was two hundred and five.

The degree of D. D. S. was conferred on the following graduates by Professor M. W. Foster, Dean:

NAME.	RESIDENCE.	NAME.	RESIDENCE.
F D Ashworth	California	M D King	North Carolina
J B Askew	Mississippi	C W Motley	Virginia
W C Ames	Virginia	E S McIlvaine	Pennsylvania
A R Badgley	Ohio	H W Murry	New Brunswick
E R Baker	Pennsylvania	L S McElrath	Virginia
J G Broad	Pennsylvania	P J McElrath	West Virginia
W W Bruck	Germany	R S Peabody	Connecticut
A D Coale	Maryland	W J Rolston	Canada
C F Chandler	Alabama	E A Stallings	Alabama
L E Chevrement	Porto Rico	F Staton	North Carolina
R L Carr	North Carolina	J B Saxby	California
F C Day	New York	S L Syckes	Pennsylvania
E E Erhart	Florida	T P Sullivan	Massachusetts
E F Early	North Carolina	W C Sprague	New Brunswick
C H Fallon	New Jersey	C A Thompson	North Carolina
E P Fitch	Connecticut	J D Tench	Florida
J N Garlinghouse	New York	A C Wall	Hawaii
J D Haggerty	New Jersey	C A Whitehead	North Carolina
J D Hunter	New Jersey	C M Wells, Ph. G	Maryland
M Holmboe	Norway	L K Walz	Virginia
C W Kammer, Ph. G	Maryland	W F Wilkinson	New York
H E Kelsey	North Carolina	C Zimmerman	Pennsylvania

Cleveland University of Dentistry and Surgery—Dental Department.

The annual commencement exercises of the Dental Department of the Cleveland University of Medicine and Surgery were held, in connection with those of the Medical Department, at Association Hall, Cleveland, Ohio, on Tuesday evening, March 24, 1896.

The number of matriculates for the session was twenty-three.

The degree of D. D. S. was conferred on the following graduates:

NAME.	RESIDENCE.	NAME.	RESIDENCE.
Thomas W Blanton	Ohio	Hoyt M Lance	Ohio
Joseph S Ewald	Ohio	George H Ormeroid	Ohio
Frank S Hunter	Pennsylvania	Edith N Sloan	Ohio

Philadelphia Dental College.

The thirty-third annual commencement exercises of the Philadelphia Dental College were held at the American Academy of Music, Philadelphia, Pa., on Thursday, March 5, 1896, at 12 o'clock, M.

The address to the graduates was delivered by Professor S. B. Howell, M. D., D. D. S., and the valedictory address by Charles N. White, D. D. S.

The number of matriculates was four hundred and nine.

The degree of D. D. S. was conferred on the following graduates by ex-Governor James A. Beaver, President of the Board of Trustees :

NAME.	RESIDENCE.
T B Ackley	Pennsylvania
Frank G Baldwin	Connecticut
L Charles Bechtle	Pennsylvania
M U Boatwright	South Carolina
L P Bourgeois	Louisiana
B C Brock	Iowa
Frederic A Brosius	Germany
Arthur E Brown	Canada
Wm E Bryce	Canada
Ellen R Carr	Connecticut
W J Carney	West Virginia
Horace P Carty	New Jersey
Arthur W Chance	Oregon
Charles B Cock	Texas
J Fred Colomb	Louisiana
Wm M Conn	Canada
C S Copeland	New Hampshire
T F Cottingham	Delaware
S P Courtney	Pennsylvania
F E Cravath	New York
James A Crawford	Pennsylvania
F G Crispin, Ph. G.	Pennsylvania
Wm H Cummings	Massachusetts
Thomas M Daniels	Massachusetts
Otto O Davis	Pennsylvania
A B Davis	Massachusetts
P P Dorr	Iowa
John J Dwyer	Massachusetts
Charles E Ellegood	Massachusetts
John P Erwin	New Jersey
F H Espenschade	Pennsylvania
J Kurtz Eyler	Pennsylvania
Byron M Fell	Pennsylvania
James A Fignerty	Pennsylvania
George N Fry	Pennsylvania
W P Galloway	Iowa
W A Gamble	Pennsylvania
Leon K Glusman	Russia
Arthur T Glew	Canada
B C Green	Illinois
E J Griffin	North Carolina
Henry C Guldin	Pennsylvania
Ernst K Gyllang	Sweden
Ezra Y Harrison	Pennsylvania
H R Hauenstein	Mississippi
Homer Heberling	Pennsylvania
Emil L H Herbst	Germany
Ferd Hinckley	Washington
Clarence E Holt	Maine
J Pedro Horcasitas	Mexico
C G Hughes	Pennsylvania
L D Johns	Wisconsin
H Furman Jones	New Jersey
J Edward Jordan	Pennsylvania
Wadea Kassab	Syria
Wm Kay	Scotland

NAME.	RESIDENCE.
Wm Kiesau	Iowa
R De Vere King	Pennsylvania
Wm H Kelly	Pennsylvania
Wm A Knapp	Connecticut
J Oscar Laird	Iowa
H H Lamb	Canada
W J Leattor	Pennsylvania
Harry F Lotz	Illinois
Melvin Markley	Nebraska
E Leslie Mason	Maine
Albert L Miller	Pennsylvania
Robert M Miller	Massachusetts
Oswald S Mitivier	Massachusetts
John E Morgan	Kansas
W G Murray	Canada
Joseph M Myers	Pennsylvania
John F McCue	Massachusetts
Thos J McLernon	Pennsylvania
J E McMillan	California
Richard Nash	British Columbia
H L Patterson	Canada
Gray B Perl	Texas
James L Peak	Missouri
B W Percival	Massachusetts
James D Price	Pennsylvania
Robert S Rendall	California
Sidney J Rauh	Ohio
Roy R Ridgely	Illinois
J S Robertson	Australia
Fred L Rounds	Massachusetts
C L Russell	Pennsylvania
H E Sangster	Canada
J Schleppegrell, M D.	South Carolina
A J Shanacy	Canada
T A Shingle	Pennsylvania
H S Skidmore	New York
A F Slater	Massachusetts
Edbert A Smith	New York
Frank R Smith	New York
George S Smoyer	Pennsylvania
Welcom C Snover	Pennsylvania
G H Sweet	Canada
William J Taylor	Canada
O D Trutt	Pennsylvania
William S Teller	New York
Charles B Twitchell	New York
Benjamin L Tyler	Pennsylvania
W M Van Atter	Canada
G Van Antwerp jr.	Alabama
W L Van Buskirk	Pennsylvania
W W Vanderhoof	New York
J A Wark	New York
John D White	Washington
Charles N White	New York
J Van Wilson	Pennsylvania
J E Wolverton	New Jersey

Vanderbilt University—Dental Department.

The seventeenth annual commencement exercises of the Dental Department of Vanderbilt University were held in the University Chapel on the evening of March 26, 1896, the Chancellor of the University, J. H. Kirkland, presiding.

Dr. W. H. Morgan, Dean of the Department, delivered the charge to the class, and the valedictory was delivered by E. F. Comegys, of Texas.

The number of matriculates was one hundred and fifty-one.

The number of graduates was twenty-eight.

The degree of D. D. S. was conferred by the Chancellor upon the following named-persons :

NAME.	RESIDENCE.
George C Albright.....	South Carolina
Arthur Barnett.....	Alabama
John Henry Boozer.....	Texas
Moscow B Cortler.....	Tennessee
Edward F Comegys.....	Texas
James Patterson Day.....	Florida
Alfred Wm Dupuy.....	Alabama
John Cecil Felix.....	Kentucky
Charles G Foulks.....	Alabama
James Blount Jordan.....	Tennessee
Wm F McKenney.....	Indiana
Joseph T Meadors.....	Tennessee
Thomas F Nanny.....	Kentucky
George W Parker.....	Ireland

NAME.	RESIDENCE.
Robert L Parker.....	South Carolina
James Fogg Pickens.....	North Carolina
Louis Frederic Riggs.....	Canada
Edgar Dunn Rose.....	Texas
Robert G Rothrock.....	Tennessee
Jesse Taylor Spain.....	Tennessee
George A Sladen.....	Tennessee
Wm Andrew Taylor.....	North Carolina
John C Whitefield.....	South Carolina
Byrne A Wilson.....	Missouri
Albert B Wiggonton.....	Illinois
Charles B Woodard.....	Tennessee
Lucian T Wyllis.....	Tennessee

Birmingham Dental College.

The third annual commencement exercises of the Birmingham Dental College were held at O'Brien's Opera House, Birmingham, Alabama, on Friday evening, April 3, 1896.

The address to the graduates was delivered by Dr. J. H. Phillips, Superintendent of Education of the city of Birmingham, and the valedictory address by William B. Fulton, D.D.S., of the graduating class.

The number of matriculates for the session was forty-two.

The degree of D. D. S. was conferred on the following graduates by T. M. Allen, D. D. S., Dean :

NAME.	RESIDENCE.
Robert E Chafer.....	Florida
W H Jett.....	Alabama
L A Crumly, B S.....	Alabama

NAME.	RESIDENCE.
G Mansfield Lathem.....	Alabama
W B Fulton, B S.....	Alabama
Arthur D Wright.....	Alabama

Pennsylvania College of Dental Surgery.

The fortieth annual commencement exercises of the Pennsylvania College of Dental Surgery were held at the American Academy of Music, Philadelphia, Pa., on Thursday evening, April 2, 1896.

The address to the graduates was delivered by Professor C. N. Pierce.

The number of matriculates for the session was three hundred and forty-two.

The degree of D. D. S. was conferred on the following graduates by I. Minis Hays, M. D., President of the College:

NAME.	RESIDENCE.	NAME	RESIDENCE.
Francesco Ardella	U. S. of Colombia	G F Huntingdon	Canada
Rafael Alvarez	U. S. of Colombia	W K Ingram	Nicaragua
R S Anderson	Pennsylvania	W A Jaquette	New Jersey
W E Askin	Pennsylvania	Hedwig Kette	Germany
Eugene C Baughn	Pennsylvania	L F Keating	New York
J E Beatty	Pennsylvania	E W Klingensmith	Pennsylvania
M Y Belber	Pennsylvania	Alfred Krouse	Nicaragua
Leon Bernstein	France	S H Langstroth	Canada
L H Berger	Pennsylvania	Rosa Liefshitz	Russia
Mary E Blake	Massachusetts	George H Martin	Massachusetts
L L Bosianu	Roumania	George C Mathison	Canada
John A Bothwell	Canada	W B Maratta	Pennsylvania
C A Bolton	Pennsylvania	Wm McIntosh	Canada
George J Brown	England	W P McElroy, M D	Pennsylvania
George S Bryson	Massachusetts	D McAlister	Pennsylvania
H P Braham	Pennsylvania	F S McGannon	Canada
J D Burley	New Hampshire	S McMurray	Pennsylvania
N P Bugbee	Vermont	J S Mullin	Pennsylvania
J W Carter	Pennsylvania	H R Nehrass	Wisconsin
E D'Arcy Cannon	Chili	H N Osler	Pennsylvania
Howard Clymer	Delaware	J B Pardoe	New Jersey
Fannie Crouch	Pennsylvania	Carlos J Peralta	Costa Rica
T G Crymes	South Carolina	W Peters, M D., D D S	Germany
J L Day	Canada	Herman T Plass	Pennsylvania
W E Darling	Connecticut	M Rebecca Rauch	Pennsylvania
J H Drexler	Pennsylvania	G C Roder	Louisiana
R J Eccles	Pennsylvania	G A Roberts	Canada
Wm Ethni	Connecticut	A P Rogers	Canada
W J Elder	Ohio	C C Robinson	New York
Mark J Emlin	New York	R A Rohrer	Pennsylvania
W A Eynon	Pennsylvania	F P Rutherford, Ph. G.	Pennsylvania
Percy Farrar	Connecticut	S V Santz	Pennsylvania
Albert Frank	Pennsylvania	C D Scholl	Pennsylvania
Angela Folkmann	Austria	John A Scott	New York
Albert Funke	Pennsylvania	E T Sherman	Massachusetts
F W Glass	Pennsylvania	Charles N Smith	Pennsylvania
T A Hart	Canada	R H Speare	Canada
B A Hart	Ohio	D G Stewart	Pennsylvania
H S Haslett	Pennsylvania	E A Theller	California
Charles F Healy	Vermont	W M Thompson	New Jersey
Clark V Hile	Pennsylvania	C M Tocornal, M D.	Chili
H J Horner	Pennsylvania	E M Treat	Pennsylvania
W A Horner	Pennsylvania	C F Vaughn	New Jersey
A Tate Hoffman	Pennsylvania	F F Westwood	New Jersey
T C Hosterman	Pennsylvania	W Whitelaw	Canada
George F Hummel	Pennsylvania	T T Wilkeson	North Carolina
John Hurdie	New York	W J Willoughby	Canada
E E Huber	Pennsylvania	J H Worthen	New Hampshire

University of Iowa—Dental Department.

The fourteenth annual commencement exercises of the Dental Department of the State University of Iowa were held at the Opera House, Iowa City, Iowa, on Monday evening, March 9, 1896.

The annual address was delivered by Professor J. R. Guthrie, A. M., M. D.

The number of matriculates for the session was two hundred and eighteen.

The degree of D. D. S. was conferred on the following graduates by the President of the University :

NAME.	RESIDENCE.	NAME.	RESIDENCE.
Marshall B Ayers	Iowa	William A Meis.....	Iowa
Sohn P Brennan	North Dakota	Leah Mills.....	Illinois
Clarence P Bevan.....	Iowa	Berton A Miller.....	Iowa
William H Batchner.....	Iowa	Otis M Newman	Nebraska
Leon H Branson	Iowa	Leon L Poston	Iowa
Besse S Casebeer.....	Iowa	Claude O Pingrey.....	Iowa
Peter F Dempsey.....	Iowa	Fred A Rowe.....	Iowa
George W Eshelman.....	Iowa	William A Reque.....	Minnesota
Thomas G Ferreby	Iowa	Ray E Sharp.....	Wisconsin
Samuel F Heverly	Iowa	Walter Stanford.....	Pennsylvania
Richard E Kidder.....	Iowa	Wm E Sauls.....	Nebraska
Norval Knight.....	Iowa	Winfred E Tubbs.....	Iowa
Herbert N Kelley	Iowa	Harry A Tobie.....	Iowa
Ira D Lutz.....	Illinois	Forest G Webber.....	Iowa
Charles B Lewis.....	Iowa	Hugo Westhofen	Wisconsin
Friend C Leslie	Iowa	Herbert H White.....	Iowa
Leon Mead	Pennsylvania		

Meharry Medical College—Dental Department.

The tenth annual commencement exercises of the Dental Department of Meharry Medical College (Central Tennessee College) were held in Nashville, Tenn., on Tuesday, February 4, 1896.

The valedictory was delivered by Edward D. Bulkley, D.D.S., and the address to the graduating class by Rev. John A. Kumler.

The number of matriculates for the session was eighteen.

The degree of D. D. S. was conferred on the following graduates by President J. Braden :

NAME.	RESIDENCE.	NAME.	RESIDENCE.
C S Boyd	Tennessee	W T Dinwiddie	Kentucky
E D Bulkley.....	South Carolina		

Kansas City Dental College.

The fourteenth annual commencement exercises of the Kansas City Dental College were held at the Auditorium, Kansas City, Mo., on Tuesday evening, March 31, 1896.

The salutatory was delivered by E. M. Blakey, D. D. S.; the Faculty address by Jabez N. Jackson, A. M., M. D.; the valedictory by F. C. Kingsley, D. D. S., and the annual address by W. A. Quayle, D. D.

The number of matriculates for the session was one hundred and fifty-five.

The degree of D. D. S. was conferred on the following graduates by Alton H. Thompson, D. D. S., President of the Faculty.

NAME.	RESIDENCE.	NAME.	RESIDENCE.
Ernest W Allison.....	Kansas	Sidney M Major.....	Missouri
Philip G Brumbaugh.....	Kansas	Edwin A Morrow.....	Missouri
Edwin L Burner.....	Kansas	James A Morrow.....	Missouri
Clarence E Crown, B S.....	Nebraska	Edwin A Morgan.....	Missouri
Louis M Breck.....	Kansas	Scott R Moore.....	Missouri
Ernest M Blakey.....	Missouri	Harry B Maxfield.....	Iowa
Daniel B Baker.....	California	Edward C Morton.....	Kansas
George G Brock.....	Iowa	Robert L Poplin.....	California
James F Copeland.....	Kansas	Vernon G Palmer.....	Iowa
Marshall P Davidson.....	Missouri	Frank J Pribil, jr.....	Kansas
William F Driscoll.....	California	Frederick F Pound.....	Missouri
Henry V Enloe.....	Missouri	Ira A Roberts.....	Kansas
Joseph K Griffith, M D.....	Missouri	Robert T Shaw.....	Kansas
George F Hauser.....	Wisconsin	David N Smith.....	Nebraska
Henry C Heady.....	Missouri	Charles V Shoop.....	Missouri
Daniel P Harford.....	Missouri	Aretas R Scott.....	Nebraska
Ed M Hiner.....	Kansas	Frederick C Stote.....	Kansas
William D Hall.....	Missouri	Earle D Toler.....	Missouri
Charles D Jackson.....	Nebraska	Jesse W Terwilliger.....	New York
Frederick C Kingsley.....	Kansas	Edmond J Treyer.....	California
Walter E Kendall.....	Kansas	Charles H Wikoff.....	Kansas
George P Lux.....	Kansas	Charles F Watkins.....	
Robert D Lowrey.....	California	William C Young.....	Missouri
LeRoy W Moore.....	California		

EDITORIAL.

Change of Place.

The annual meeting of the Southern Dental Association will be held at Asheville, N. C., on the 28th of July, 1896, the headquarters being at Battery Park Hotel. The intention some time ago was that this meeting should be held at Lookout Mountain, but learning that ample accommodations could not there be obtained, a change of place was found to be necessary. The indi-

cations are that the attendance will be very large. It is, however, a little unfortunate, perhaps, that this meeting occurs but a week before the annual meeting of the American Dental Association at Saratoga, N. Y., and also the meeting of three other bodies at the same time and place, at each of which many of the members of the Southern Association ought to be present, and in which many of them are greatly interested. It may be, however, that the plan is, on the part of many, to go direct from Asheville to Saratoga. We hope this may be the case. The time for holding the Southern Association meetings will, undoubtedly, prevent many of the profession from the more northern portions of our country from attending the southern meetings, which is a matter of regret, and we would suggest that all of the southern brethren go to Saratoga, and thus overcome this unfortunate circumstance as far as possible.

Inter-State Dental Meeting.

The States of Iowa, Nebraska, Missouri and Kansas will hold an Inter-State Dental Meeting at Excelsior Springs, Missouri, June 23 to 26, 1896, inclusive. The Executive Committee having the matter in charge have made extensive preparations and very complete arrangements for this joint meeting. The accommodations at Excelsior Springs are unsurpassed in the West, and, without doubt, this will be a very enjoyable occasion. Preparation has been made for an extensive clinic, of which Dr. H. J. McKellops, of St. Louis, is supervisor-general, and every one who knows McKellops, will readily understand the character of the clinics that will be given. Clinicians will please bear in mind that they should come prepared with instruments for any work they propose doing. Engines and lathes will be provided by the supervisor. The display of electrical appliances will be a special feature. Inter-State meetings constitute a new feature in dental society work, and in every instance, so far, where attempted, have proven to be eminently successful. Elements enter into this class of meetings which are not found in the small

State dental meetings, and certainly not in those of a more local character. We shall expect to hear of grand results from this meeting.

The Odontological Society.

The Odontological Society of Cincinnati held its monthly meeting March 27th at the office of Dr. Vandervort. A fair representation of the membership was present. A paper on "Hypnotic Suggestion" was read by Dr. A. A. Kumler which contained some interesting points that drew out considerable discussion on the question. The generally-expressed opinion of the members was to the effect, that hypnotism, while it may be employed in some cases with benefit, its general use in medical or dental practice does not seem feasible. In some cases it can be used effectively upon patients, but again there is such a great want of accurate and definite knowledge upon the subject as to make its use impracticable; and, furthermore, there is almost a universal prejudice against its use, and there are very few persons who wish to array themselves squarely against so universal a prejudice. It was conceded on all sides that there was much in hypnotism, and that perhaps further knowledge would render it more useful and practicable than it has been up to the present time. It is possible, and even probable, that investigation will in the future clear away some, or even many, of the difficulties that have hitherto attended this subject.

The American Academy of Dental Science.

This society holds its regular monthly meeting about the first of each month, and sends out its programme for each meeting not only to its members but to its corresponding and honorary members as well. It always has some interesting subject for consideration, a paper on same being read, and some of the members prepared for its discussion. Usually a dinner is given

just before beginning the regular work of the meeting. This is one of the model city dental societies of the country in which its members derive great benefit.

Several other cities of our country have good local societies; probably none better than this. Why should not every large city of our country have equally as good and profitable city society as Boston? Let those answer who can.

In Memory of the Late Dr. W. H. Dwinelle.

We understand that a biographical and historical sketch of the late Dr. W. H. Dwinelle is being prepared by his sister, Miss Louisa L. Dwinelle. This will be not only a loving tribute from a dear sister, but will undoubtedly present matter of great interest to the profession at large concerning Dr. Dwinelle's career, which was a very remarkable one--remarkable for the length of his professional life, and especially remarkable for the work he did for his beloved profession during that period. He was practically a pioneer, was familiar with pioneer methods and processes, many of which he found crude and which under his master hand were changed into more feasible and practicable forms and conditions. He devoted much time and labor to this kind of work, and the history of what he did and how he did it would be of lasting benefit, especially to the younger members of the profession. We shall look with interest to the forthcoming of this work.

Notice.

The thirty-eighth annual meeting of the Indiana State Dental Association will be held at Indianapolis, Ind., in the new Indiana Dental College building, commencing Tuesday, June 30th, 1896, at 10:00 A. M. All members of the profession are invited to attend.

The State Board of Dental Examiners will meet at the same time and place.

M. A. MASON, D.D.S., *Secretary*,
Fort Wayne, Indiana.

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JULY, 1896.

[No. 7.

COMMUNICATIONS.

The Value of Differential Diagnosis in Dentistry.

BY V. A. LATHAM, M.D., CHICAGO.

Read before the Section on Dental and Oral Surgery at the forty-sixth annual meeting of the American Medical Association, at Baltimore, Md., May 7th to 10th, 1895.

The subject of diagnosis is one of much importance to a practitioner, and the man who can diagnose rapidly and accurately is usually successful in his profession. In medical works great importance is laid on diagnosis, even to such a degree that special works are written on the subject. Who does not remember the differential tables in nervous, respiratory and cardiac diseases, and the dread they inspired at examinations? Without their aid we are not able to diagnose our cases, and hence the urgency of requiring students to learn them. I have constantly been surprised at the difficulties which students encounter in dental surgery and pathology. Even a well-read student finds it hard to bring his knowledge to bear promptly and efficiently upon the patient before him. The recognition of the several symptoms which the student has learned from lectures or reading can be best directed by the teacher at the side of the operating chair, just as it is at the bedside in medicine; but in his absence it is not always easy for the student to get a clue to the nature of the case before him. Every member of the dental profession can recall the days of his service in the operating room, and remember his difficulty in procuring help from the professor or his assistant, for as a rule, the corps of instructors in our colleges,

medical and dental, is much too small to allow more than a passing glance or word to an inquiring student, and he does the best he can. Whether this is a wise plan or not is a subject for discussion, for several reasons. First and foremost, the student is incapable, in the majority of cases, of understanding the treatment of his earlier cases. Again, the patient, even a charity case, under these conditions is entitled to good judgment in his diagnosis, though willing to submit to the student operator; his position demands the supervision of a chief, not only for the care and result of the operation, but for the welfare and regard of the institution in which the operation is held. It is not always a patient's fault that he is a public case, and indeed, we, as a class of students, graduates or undergraduates, must remember it is through their misfortune we obtain our practical experience, and so ought to give every care and attention to do the best we can for the "subjects of the clinics." The larger the clinics, the more benefit we may derive from them. The larger the corps of capable demonstrators under the guidance of an experienced diagnostician as "chief," the more practical and successful professional men and women we become.

It is evident that before any one can successfully treat a disease, he must be acquainted with its nature and the symptoms it produces. For instance, before prescribing for a patient suffering from pain in the head, he must ascertain from what that pain arises. It may result from a carious tooth, when treatment or extraction will give relief; or from periostitis, when potassium iodide will be beneficial; or from constipation, for which only a purgative is required; or again, it may be symptomatic of an incurable disease of the brain, which might be aggravated by many of the remedies well fitted for the cure of a less formidable disorder.

Diagnosis is the science which teaches us thus to distinguish one disease from another, and to trace symptoms to the causes from which they spring. Now, diagnosis is valuable not only for treatment, but it enables you to form an accurate opinion as to the future course of a disease. For example, two persons may complain of palpitation of the heart; in the one the organ

is healthy in its structure, but unduly excited by disordered digestion; in the other it may be affected with an incurable disease that may at any moment terminate the patient's life. It seems a curious fact that works on dental surgery are so very imperfect and rambling on the subject of diagnosis. I doubt if any branch of medicine is so poor in this respect. What is the reason? I suspect it lies in five sources:

1. The hurry to obtain a diploma.
2. The study of *only just* what seems absolutely necessary in the practice of dentistry, and a corresponding inability to apply general principles.
3. The fear of encroaching on general medicine.
4. Insufficient preliminary *education*.
5. Lack of a thorough knowledge of the *normal conditions*; and a habit of relying too much upon one mode of treatment.

Diseases are distinguished from each other by such alterations in the organs themselves, or in their secretions, as can be ascertained by the senses of the observer (physical signs); or by changes in the functions of the parts affected (symptoms). The physical signs are least liable to misconception, inasmuch as we are independent of any suggestion on the part of the patient. Thus we see a carious tooth, or an exposed pulp, or a swelling, we know that there must be some abnormal condition of the part. Physical signs can not be exclusively relied upon for the formation of a diagnosis; the symptoms and history of the case must also be taken into consideration. It is generally difficult for a student to guide a patient's account of his complaint in such a way as to derive the necessary information from it. Most persons ramble in describing symptoms, and insist, in many cases, on giving their own or other persons' opinions as to the nature of their disease, instead of confining themselves to a narration of facts. The only way to overcome this is by conducting your examination in a systematic manner, and by having a definite aim in every question you ask. Students are apt to suppose that some particular sign or symptom is sufficient to indicate each disease. Unfortunately this is not the case. On the contrary, we can rarely diagnose any morbid condition without

taking into consideration a number of symptoms ; indeed, we are often forced to determine the nature of a malady by proving what it is *not* rather than what it is—diagnosis by exclusion.

The subject of “taking cases” ought to be insisted upon in all medical and dental hospitals and colleges, and all students should be required to examine cases and to write out their histories in their operating or clinic service, the reports to be read and criticized before the class by the professors of the several subjects. To know which points are the important ones is anything but easy, and can only be acquired by experience and through sound teaching. How many valuable cases become wholly worthless from the reason of bad or incomplete histories is only known to those in the profession who try to do legitimate and scientific study. Hospital internes are generally poor history takers because they are badly trained, and are often overwhelmed with work, the number of patients allotted to each interne being too great to permit thorough, painstaking work. This is often injustice to the patients, and always so to the interne ; for the value of his appointment lies in the opportunity for the close study of his cases, under a staff of skilled consultants, from whom he can inquire concerning obscure points in signs and symptoms, and whose discussions and remarks upon treatment and results serve to impress the points indelibly upon his memory. For this training he gives his time and strength, and certainly has a right to all the privileges of his position ; he ought not to be worked like a machine ! It is not the number of gold fillings inserted in a day, but the nature of the caries, its etiology, treatment and results we are after. What good is it to teach a student to insert a gold filling with a perfect adaptation and contour if he does not recognize the variety of decay, the resistance and pathologic conditions offered by the histologic elements, the condition of the gums, the development and articulation of the maxillæ and teeth, the state of the secretions of the stomach and oral cavity, as well as the general condition of the patient ? It is worse than useless to expect good results, except by chance, without accurate knowledge on these vital points. For we must remember that the general health will permit only of temporary

measures in such constitutional states as diabetes, locomotor ataxia, pregnancy and in convalescence from the acute fevers.

The most difficult problems, perhaps, we have to diagnose in dental pathology are the neurologic. Dental irritation is one of the commonest and most powerful causes of reflex nervous disturbances. We all know of many cases treated by the medical profession for months which might have been relieved by attention to the teeth. Understand, I do not mean to omit the medical treatment of such diseases as syphilis, malaria, neoplasms and so forth. The terminations of the fifth nerve, namely the pulps, seldom allow increased circulation because of the resistant walls surrounding them, by which the entire pressure is reflected back to the central nervous system and to all peripheral nerves. Even when the sufferer indicates a special tooth we may find the trouble in the other jaw and on the opposite side. It may not be amiss to consider here some varieties of pain and their indications. Two sources of dental pain are: 1, the nerves of the tooth-pulp; the dentinal fibrils and the contents of the interglobular spaces of dentine; 2, the alveolo-dental periosteum.

Pain arising from the pulp and from the dentinal fibrils is always the same in character, but may vary in degree. The pulp and protoplasmic elements of a tooth may set up a localized pain; but usually the pain arising from these structures is now localized, being felt at a distance. Periosteal disease, on the contrary, invariably causes local pain, and never pain at a distance, or only such as is quite insignificant when compared to local pain. Thus, true neuralgia never arises from uncomplicated alveolo-dental periostitis. Neuralgia, therefore, never arises uncomplicated from a dead tooth. This, as proven by experience, helps us to arrive at a correct diagnosis of the cause of one variety of dental pain. Often obstinate cases of obscure neuralgic pain can be cured by curing alveolo-dental periostitis of a dead tooth. This may be explained by assuming that the periostitis is complicated by some irritation or inflammation of a neighboring pulp; which irritation or inflammation may be passed on from the inflamed periosteum to the pulps in its proximity by continuity of tissue. When this is the case the pulp is

attacked from the proximal end, the inflammation following the apical foramenal nerve and vessels. Where alveolo-dental periostitis occurs in live teeth there is almost always some irritation or inflammation of the pulp, which may be secondary or otherwise. The following are modes of diagnosing causes of pain in or from the teeth :

1. Explore with the mirror and a sharp-pointed probe ; find the cavities, then test for living or dead pulps. If the deep cavities are sensitive, or the nerves exposed, here is the probable cause of the pain. These are our easy, straightforward cases. If, however, no pulp canals are open, then we must—

2. Test by percussion and thermal changes. If the pulp is found unduly sensitive, hyperemia and irritation are indicated ; if insensitive to thermal changes, partial or complete necrosis may be diagnosed. (The heat test must be applied for some time, so the tooth feels hot to the finger, before necrosis can be regarded as proven.) This is not always true, though it is fair to conclude that hypersensitiveness to thermal changes indicates the tooth as a probable cause of neuralgia, while diminished sensibility is as often a sign of partial or complete necrosis. If we are still doubtful—

3. Drilling is justifiable, for if the pulp be alive, though much receded by calcification, pain will generally be felt by the cutting of the dentinal fibrils before the pulp is reached. Carefully distinguish, however, between pain caused by the pressure of the instrument in cases where alveolo-dental periostitis is present, and that due to hyperæmic pulp. Any branches of the fifth nerve in the head, face or teeth, or even more remote nerves, as the superficial cervical, or even the brachial nerves, may be the seat of neuralgic pain arising from any tooth on that side. The pain, however, never crosses the vertical median line, often the faulty teeth being unsuspected by the patient. Reflex neuralgia from such a tooth may occur anywhere, but usually its favorite location is where the nerves emerge from foramina and where they anastomose. There are also certain preferred sites for certain teeth. For example, pain in the ear and pain shooting down the shoulder and into the arm, if dental in origin, is

almost certain to arise from an inferior tooth. Pain, supra and infra-orbital, almost always arises from a superior tooth. Temporal pain, pain in front of tragus over auriculo-temporal nerve, or parietal pain, "parietal focal spot," usually arises from a tooth in either mandible. Pain felt in one tooth is often due to a companion tooth in the other mandible. Pain widely diffused in character, *i. e.*, shooting along many branches of the fifth nerve at one and the same time, is usually from a tooth far back in the mouth, third molar. Pain of a live pulp is not continuous but capricious, lasting a short time and suddenly disappearing, periodic in appearance, frequently benefited by medicines, as salicylate of soda, quinine and other tonics or stimulants. In both these particulars neuralgia arising from the pulp agrees with neuralgia arising from unknown or constitutional causes (idiopathic neuralgia). This similarity of behavior has often led to a false diagnosis of the etiology of neuralgia on the part of physicians and dentists. The pathologic pulp which causes neuralgia of the usual capricious character is often in a state of chronic inflammation; acute pulpitis seldom reaching the dental surgeon in the early stage, the pulp soon dies. In pulpitis, cold alone is acceptable to the patient for giving relief, periosteal symptoms being nearly always present. Nerve exhaustion means increased nervous irritability. Anæmia of young subjects, especially, causes severe neuralgia to arise from such slight causes as exposure of dentine at the necks of the teeth, through irritation of the dentinal fibrils and their canalicular terminations.

With regard to etiology of dental periostitis and pulpitis, the diplococcus pneumoniæ may be regarded as a factor, usually accompanied by the staphylococcus pyogenes aureus and albus. Long-continued pulpitis may cause inflammation of the antrum just as well as a severe catarrhal inflammation can do so. Non-eruption of the teeth, which is very hard to diagnose in the early stages, can also cause a purulent condition of the antrum, and may give frequent and persistent neuralgia, as well as trismus from irritation of the inferior dental nerve.

Causes of neuralgic pains are: 1, sensitive dentine; 2, fibroid pulps; 3, crowding; 4, necrosis of pulp in a confined space; 5, exostosis; 6, alveolar periostitis; 7, filling over exposed pulp; 8, malpresentation of third molar; 9, rheumatic and gouty diathesis; 10, anæmic and chlorotic states; 11, serous calculus on roots; 12, malaria; 13, pulp nodules; 14, sympathy; 15, recession and absorption of gum and alveolus; 16, pressure of gases in the pulp chamber; 17, traumatism.

The most pernicious form of neuralgia is that which is due to septic influences occurring after some traumatic injury, in which paresis or paralysis of the nerve effected sometimes follows.

Differential Diagnosis between Antral Abscess and Ozena.—Points in favor of the former are: 1, the presence of pulpless teeth; 2, a shortening of the face from the oral cavity to the orbit; 3, accumulation and sudden reaccumulation of pus, showing at the hiatus, in middle meatus, half an inch from anterior extremity of inferior turbinated bone; 4, discharge of pus increased on putting patient in horizontal position, especially on the sound side; 5, relative darkness over the diseased maxilla when the bones of the face are illuminated; 6, puncture through nose and aspiration of fluid; 7, presence of carious teeth, especially roots, in upper mandible. Bulging of the cheek and deformity of the jaw are not always present. Ozena is recognized by: 1, characteristic fetid discharge; 2, olfactory anæsthesia; 3, detection of denuded necrosed bone in nares; 4, presence of crusts of dried secretions and ulcers, especially in nasopharynx; 5, the teeth may be normal; 6, diathesis (syphilitic or strumous).

The following appended tables may be useful:

Sensitive Dentine.

When the examination over a considerable part of the cavity walls does not respond to simple pressure. Pain is not persistent.

If the Pulp is Sensitive.

When the examination is made near the pulp it responds to pressure.

Hyperæmia of the Pulp.

Pain of boring character; tooth highly sensitive to hot and cold temperatures, and painful in mastication and on pressure. Hard to distinguish from exposed dentine. Absence of throbbing pain (pathognomonic of pulpitis); serious neuralgia may be a symptom.

Chronic Pulpitis.

Pain less severe than in the acute form, not very intense nor long in duration when present. Comes on at irregular intervals—often vague neuralgic pains. Sudden changes of temperature, or applications of irritants will produce a paroxysm of pain, lasting from a few minutes to hours. Pulp shows inflammation limited to exposed spots, the rest pale and healthy.

It is often difficult to distinguish pulpitis from hyperæmia. In hyperæmia the throbbing character of the pain is not so well marked and the pulp usually not exposed. Pulpitis must also be distinguished from periostitis; the differential points being as follows:

Pulpitis.

Pain, sharp, lancinating or throbbing, intermittent and reflected within the tooth.

Thermal changes cause pain.

Pressure or percussion on tooth gives no pain at first.

Slight pressure on a piece of wool in cavity generally gives acute pain.

With pulpitis we may have pericementitis by continuity.

Pulpitis.

Pain of a boring character rapidly increasing, assuming a throbbing form, extending from the diseased tooth to the neighboring teeth and to the side of the face, the tooth forming the center of its intensity. The larger and younger the pulp the greater the pain. In time the pain subsides, to return, though, on the slightest provocation, or the horizontal position being resumed. Pulp injected with blood throughout, the exposed part deeper in color.

Necrosis of Pulp.

Pain becomes changed to a dull, heavy ache with feeling of tension. Tooth feels too long, raised in alveolus by the pericementitis and periostitis, and loosened; may have some swelling at the side, on the gum or at the root; a change of color can be seen by a strong light, the dead tooth having a dark line in the pulp region.

Periodontitis.

Pain, dull, heavy and constant, and without the tooth.

Thermal changes do not cause pain.

Pressure or percussion on tooth gives pain from the first.

Slight pressure does not give pain except through pressure transmitted to the periosteum.

Tooth loosens and elongates.

A student may be well-versed in the sciences of his profession, and yet unable to diagnose the simplest case of disease presented in actual practice, simply because the knowledge has not become his own in sufficient degree to enable him to comprehend appearances. Diagnosis, to be useful, must not only be clear and satisfactory to our own minds, but made so plain to those in charge of the case as to render them alive to the real necessities present, thus securing that co-operation without which treatment will be ineffectual, if not actually a damage to those we essay to benefit. No diagnostician who is conscientious as well as competent will set up his own opinion as the standard, but will always rely upon the perception of those to whom he wishes to make the diagnosis plain, and in this very idea is the safety, for the recapitulation of the case may reveal points previously unnoticed, so giving certainty and confidence to the patient and himself. To become a good diagnostician it is imperative to understand principles and laws in preference to formularies and modes, and to comprehend these one's powers must not only be good, but kept in constant use, thus insuring the best and latest methods, reading and experience.

PROCEEDINGS.

The Mississippi Dental Association.

Reported for the DENTAL REGISTER by JEROME M. WALKER.

The Mississippi Dental Association held its annual session for 1896 in Jackson, April 21-23.

The President, Dr. T. C. West, of Natchez, occupied the chair.

The President, in his annual address, suggested a radical change in the working methods of the association. Instead of relying upon the chairmen of the different sections to prepare essays, he suggested the appointment of a committee, annually, to select subjects for the papers and discussions of the next an-

nual meeting, and also to select the essayists and some one to open the discussion of each subject. The subjects being announced in advance, the members will be better prepared for intelligent discussion.

The suggestion having been adopted, at a later session the following list of topics was announced :

- (1) Education.
- (2) Use and Abuse of Plastics.
- (3) Development of the Mandible and Maxilla.
- (4) Metallurgy.
- (5) Prosthesis.

The President suggested that discussion of the clinics also be made a special order of business, as calculated to add materially to the benefit to be derived from the clinics and in adding to the interest of the meeting.

This suggestion was also adopted, and was found to be especially interesting. The clinics were of unusual value, prominent operators from other States having been secured as clinicians.

PROF. J. A. DALE, of Vanderbilt Dental Department, gave clinics in crown and bridge-work, the work being rapidly and skillfully executed. He also gave clinics in Orthodontiæ, by the Jackson method, exhibiting and constructing the "crib" appliances.

PROF. T. P. HINMAN, of the Atlanta Dental College, gave a clinic in bleaching teeth with pyrozone, 25 percent, a new and original feature being the application, after the tooth is bleached to normal color, of a clear, chloroform solution of gum mastic to the walls of the cavity and root-canals, the evaporation of the chloroform leaving a clear, transparent layer against the cavity-walls, and entering the open tubuli or canals, preventing future discoloration. Dr. T. P. Hinman also gave a very interesting and instructive "chalk-talk" on the subject of bleaching teeth.

He drew on the blackboard an illustration of a central incisor, supposed to be dead and discolored. Indicating the usual point of opening into the pulp-chamber from the palatine surface, he said: "You are all, of course, very careful to remove all the decomposed tissue from the pulp-chamber and from the root-canal,

but do you always remember these pockets (indicating the horns of the pulp), dipping down toward the cutting edge of the tooth? Unless they are thoroughly cleansed and filled, discoloration will return in spite of all your success in bleaching the tooth. Before undertaking to bleach the tooth, after all decomposed tissue has been removed, the root-canal must be well filled a certain distance down from the apex, preferably with oxide of zinc and aristol (equal parts), and a little oil of cassia. The tooth is then to be bleached with pyrozone, heating and drying the tooth between each application. The 25-percent ethereal solution is used, applied on a pellet of cotton to saturation, the surrounding tissues being protected by the rubber dam. The cavity is temporarily filled with gutta-percha, and, if necessary, the pyrozone application repeated the next day. When the tubuli have thus been bleached, and the tooth dehydrated, a chloroform solution of clear, transparent gum-mastic is applied to the walls of the cavity and the unfilled portion of the root-canal. The open tubuli take it up, and it hardens immediately, forming a white, transparent cavity-lining, and preventing any subsequent discoloration. Cement is then inserted against the cavity-walls, and the cavity filled as described."

Dr. Hinman has been forced to the conclusion that pyrozone 3 percent (medicinal), used as a mouth-wash, is very deleterious to amalgam fillings. He has observed fillings that had been doing good service for ten or fifteen years simply ruined by the chemical action of the pyrozone upon them.

The 25 percent is a powerful escharotic, the glyceride of tannin gives prompt relief in case of burn.

PROF. FRANK HOLLAND, of the Southern Medical College, Atlanta, Ga., Dental Department, did some very extensive and beautiful gold contour-restoration work, using Perry's Separators and the Electric Mallet, restoring badly decayed first and second bicuspid, and first molar (distal, morsal, and mesial), at one sitting, with great skill, rapidity and apparent ease. Prof. Holland also extracted a badly-impacted third molar with great skill.

MR. ESTERLY, of the Atlanta branch house of the S. S. White Dental Manufacturing Company, demonstrated the Hollings-

worth system of crown and bridge-work, constructing a number of crowns, and showing some novel and interesting features in the adaptation of the Hollingsworth system.

At the last annual meeting of the association a committee was appointed to secure the enactment of amendments to the dental law.

The Chairman of the Legislative Committee, DR. J. H. MAGRUDER, of Jackson, reported that a bill, embodying the amendments to the dental law, approved by the association at its last annual meeting, had been introduced in the Senate and passed without a dissenting vote, was introduced in the House, where, with some minor amendments, it passed almost unanimously. As amended it again passed the Senate unanimously; but notwithstanding this remarkable unanimity of sentiment on the part of the representatives of the people of the State, it was returned by the Governor without his signature, on the ground that it was "class legislation," and that it "gave the association too much power." The "power" given to the association by the proposed amendment lies in limiting the Governor, in the appointment of the Board of Dental Examiners, to choice from a list of *fourteen* chosen for recommendation by the association.

By the present law, a full new Board is appointed by each Governor, as soon as possible after his election, the entire Board serving during the full term of office of the Governor appointing it. One of the proposed amendments was that one member should go out every year, his place to be filled by the Governor by appointment from the list of fourteen mentioned, thus providing for one member of four years' experience always on the Board. The committee was continued, with instructions to interview the Governor and lay before him the methods adopted in other States, and to so modify the bill as to secure the Governor's consent to having it brought up before the next Legislature.

DR. A. B. KELLY, of Yazoo City, read a paper on "The Use in Dental Practice of (1) Arsenious Oxide, (2) Campho Phenique, and (3) Fluo-Silicate of Sodium." This paper was an interesting *resume* of the varied applications of these important medicinal agents, and brought out an extended discussion of

the subject of pulp-devitalization and root-canal filling, in which Drs. W. T. Martin, T. C. West, J. P. Broadstreet, T. P. Hinman, L. Holland, W. E. Walker, Frank Smith, L. A. Smith, and J. A. Dale took part.

DR. HOLLAND applies oil of cloves to the pulp for fifteen minutes for applying arsenic, and usually accomplished the death of the pulp without any discomfort to the patient.

DR. T. P. HINMAN applies tricresol to the minute fibers of living pulp-tissue, often so difficult to remove. A heated broach is then used to char the tissue.

DR. MARTIN uses trichloroacetic acid for the same purpose.

DR. HOLLAND uses only a heated Evans' root-canal drier, or an electric root-drier. The removal is effected very quickly and without pain.

DR. T. C. WEST uses a 50-percent solution of sulphuric acid, which stiffens the fibrils so that they are easily removed. He also anæsthetizes the entire pulp with chloride of ethyl, instead of devitalizing with arsenic, and often removes it painlessly by this method.

DR. FRANK SMITH fills root-canals with points composed of paraffine or wax, and about half as much iodoform. These are introduced in the canal and followed by the heated Evans' root-drier, causing the material to penetrate into the dentinal tubuli.

DR. WALKER uses dressing-seal, with creosote worked into it, working it on a warm metal slab with a warm spatula. When the creosote is thoroughly incorporated, it is made into rolls and introduced into the canal with cold instruments and followed by hot air.

DR. HINMAN uses equal parts of oxide of zinc and aristol, with a little oil cassia, followed by a gutta-percha point.

DR. J. P. BROADSTREET, of Grenada, read a paper entitled "A Needed Educational Reform," being an able and eloquent plea for the education of the people in dental hygiene through the children in the public schools.

The paper was discussed and different methods suggested of accomplishing the much desired end. No definite conclusion was reached as to the best means of overcoming the many diffi-

culties encountered in trying to reach those who are never met until driven to the dental chair by unbearable suffering.

DR. WALKER suggested the appointment of a committee to confer with the Superintendent of Education, with a view to the possible appointment of a lecturer on dental hygiene, to make the rounds of the public schools of the State, the lecture to be approved by the association, the lecturer to be indorsed by the State Superintendent of Education.

DR. HOLLAND does not think it would be possible to get the common-school children interested in a lecture on dental hygiene; they would look upon it as only an additional task imposed upon them.

DR. WEST, on the other hand, thinks that even the youngest children could be interested in the subject, and spoke of the effect produced upon little kindergarten children by what "teacher says"—if "teacher says" they must do this, and must not do that, it seems to impress them more deeply than the routine of home-teaching.

The subject of the Dental Protective Association was brought before the association for discussion by Dr. Walker, as a matter in which every member of the dental profession was individually interested. Drs. Luckie and Martin seconded the remarks of Dr. Walker, and considerable interest was manifested in the matter. The subject of the proposition made to the dental profession by the management of the Army Medical and Surgical Museum, at Washington, was presented by Dr. J. A. DALE, in a letter from Dr. HENRY W. MORGAN, and the president was authorized to appoint a committee to secure contributions from the Mississippi Dental Association.

An invitation to hold a joint meeting with the State Societies of Alabama, Georgia and Florida was received. While appreciated, the invitation was necessarily declined, the charter of the association requiring that the annual meetings be held within the borders of the State, the "legal domicile" being the State capital, Jackson.

The election of officers resulted in the choice of Dr. Frank H. Smith, Water Valley, President; Dr. P. H. Wright, Senatobia,

Vice-President ; Dr. J. P. Broadstreet, Grenada, Secretary ; Dr. C. C. Crowder, Kosciusko, Treasurer.

The association adjourned to meet on the Wednesday of the week in which occurs the next meeting of the Board of Dental Examiners, the date of which is uncertain until the fate of the proposed amendments to the dental law is finally decided.

MONTHLY DIGEST.

Reported for the DENTAL REGISTER by Mrs. J. M. Walker.

PROSTHETICS.

The *actual* and the *ideal* is thus portrayed editorially in the consideration of *Specialism in Dentistry*.* “ We have many very capable specialists in the mere mechanical details. They have attained the perfection of the jeweler’s art, but they can go no further. . . . The prosthetic specialist, instead of being merely the skillful mechanic, should make the facial characteristics a study, have some knowledge of temperaments, study the rules of articulation, in a word combine in his work all that is meant by the word artistic. He should be given the entire management of the insertion of an artificial denture, and thus bring it to such perfection that ‘art will conceal art’ and not, as now, make it the most prominent feature of the work. In this way only, it seems to us, can this important specialty receive the attention it must ever demand.”

In a series of five articles, entitled

PORCELAIN DENTAL ART,†

DR. W. A. CAPON considers the advantages offered by porcelain work in overcoming deformities and defects, in an artistic and acceptable manner, the work proving reliable and satisfactory under the most discouraging conditions, for fillings, crowns and bridges.

*International, April 1, 1895.

†Items of Interest, January-May, 1895.

The porcelain inlay, properly made and adjusted, is the least noticeable, and the most artistic method of restoring the anterior teeth, where large gold fillings are objectionably conspicuous, and the work long and tedious. This work is especially indicated in labial and large proximal cavities and contoured tips, broken centrals and losses by excessive abrasion.

By means of porcelain crowns the most difficult cases can be overcome as the teeth can be carved to fit any peculiarity. They may be pin crowns, with or without collars, crowns with tubes to fit over posts screwed into the canals, or jacket crowns for teeth with living pulps. This crown can also be used when the roots, for any reason, are useless for the retention of pin crowns.

Illustrations in the March and April issues, *Items of Interest*, show the almost unlimited range of usefulness of the jacket crown, in the restoration of the most difficult cases. All-porcelain bridge-work requires a thorough knowledge of porcelain furnaces, the oxyhydrogen blow pipe, etc. Its principal advantages lie in its strength, cleanliness, natural appearance, from the entire absence of gold, and also the low cost of production, often a mere fraction of the cost of a gold and porcelain section. It emerges from the furnace in a completely finished condition, saving the hours of grinding and finishing required with gold and porcelain work.

GLASS INLAYS.

DR. WM. TRUEMAN* gives some interesting paragraphs quoted from an old English work published in 1837, describing glass inlays for use in "cavities in the front of a cutting tooth," also caps of gold, platina or palladium, stamped up to fit the fronts of the caps to be glazed, to be worn when teeth are very much decayed, discolored, or have the enamel much injured or disfigured.

PORCELAIN WORK IN DENTISTRY.

DR. G. W. SCHWARTZ, in a paper read before the Odontographic Society, of Chicago,† reviews the use of porcelain-work in dentistry, dating from its practical introduction as "continu-

* International Dental Journal, June, 1895.

† Dental Review, May, 1895.

ous gum" by Dr. John Allen. He said it is now one of the most æsthetic specialties, and also the least mechanical. It is not in more general use because of the lack of literature on the subject, and the expense of furnace equipments, etc. Its great value lies in the fact that it so perfectly conceals the work done in conspicuous parts of the mouth.

Dr. Schwartz prefers high-grade body (preferably Close's continuous-gum body), because of the difficulty of getting the correct color with low-fusing bodies. For crowns he prefers a porcelain veneer backed to a platinum cap. His method is given in detail for incisors and cuspids, also for bicuspid. Porcelain bridges he makes, in most cases, with a saddle, the porcelain being baked to it. He concludes: "With the present facilities there is no reason why progressive dentists should not do the porcelain work required in their practice."

LINING RUBBER PLATES WITH ALUMINUM.

DR. THOMAS R. PIXTON,* gives the following method: "The cast must be thoroughly hard and dry. Using the round end of a toothbrush handle as a tool, aluminum plate (28-gauge), properly annealed, is burnished to the cast, working always from the palate to the top of the ridge. When well burnished down, without any folds, smooth the aluminum down over the ridge, a little at a time, very evenly, to prevent folds; this requires practice and patience. When a good fit is secured, with a sharp enamel chisel, held at an angle of about twenty-five degrees, go all around the edges and over the palate, turning up small hooks; cut around in the opposite direction, forming a double hook; this will be found quite sufficient to hold the rubber. Anneal once more to be sure that it is sufficiently soft; set up the teeth with wax, and proceed as in making an ordinary rubber-plate."

DR. DAVENPORT, at a meeting of the New York Odontological Society,† described a method by which he had very satisfactorily made over an old rubber plate which was no longer a good fit. The piece was a full upper denture, of which the arrangement of the teeth and the articulation was very satisfactory. He

* Items of Interest, May, 1895.

† International Dental Journal, March, 1895.

cut out the entire center of the plate, leaving only sufficient rubber to hold the teeth together. An impression of the mouth was taken, and a cast made. The teeth, as mounted on the rubber of the old plate, were placed on the cast and waxed up and finished as usual. The result was very satisfactory.

GOLD CROWNS.*

DR. H. H. BOSWELL considers the habit of sticking gold crowns anywhere for a few dollars an insult to dental art. They are objectionable not only because of their detractive appearance, because of the sensitiveness of the tooth with living pulp induced by the cutting necessary to get an adaptation, and because of the cement used that mar the cervical margin, secreting fluids which decompose, infecting the cement, the serum from the inflamed gum also decomposing, with an odor foul beyond expression.

He advises all who do crown work to remove the tooth so as to shape and ferrule the root without overlapping margins, getting a close metallic adaptation, requiring very little cement. Use the porcelain face for all except those out of sight. Judiciously used, they are a blessing to mankind. In the hands of the unscrupulous, or the unskilled, they are often a curse.

In the discussion of the subject by the Union Convention, in Buffalo, Dr. W. W. Freeman spoke of the importance of the occlusion of a crown with the antagonizing natural teeth. To secure this the crown itself should be reduced with wheel or file. Grinding away the antagonizing tooth is apt to produce hypersensitiveness. He would not touch the natural teeth in this way under any circumstances.

DR. A. J. STEVENS† gives a few fundamental rules which should govern in placing gold crowns. The requisites are good judgment, good theory, proper tools and mechanical and artistic skill. The natural crown should be reduced till a wire tightly twisted around the neck of the tooth will slip off without stretching. This gives the proper measure for the band. This, when soldered, should be trimmed to correspond to the gum contour

* Cosmos, April, 1895.

† Items of Interest, April, 1895.

and the edge beveled so that it can be burnished close to the tooth. Use 32-gauge gold plate for the crown with cusps well reinforced. Fill the root with gutta-percha followed by gutta-percha points of proper size.

TEMPORARY STOPPING.

DR. J. FOSTER FLAGG*: The present compound of red gutta-percha base-plate, white wax and precipitated chalk, offers the lowest grade of heat-test and is, therefore, especially indicated in near approach to the pulp. It is almost "non-leaky" and is, therefore, valuable in protecting the pulp from medicaments or chemicals, as in sensitive dentine treatment and in the protection of arsenical applications when not exposed to attrition. It should always be used in the pink color as a reminder of its presence. When used near the pulp it should be warmed and used with warm instruments. Otherwise, if properly made, warm instruments will not be found necessary.

THE INFLUENCE OF PREGNANCY UPON DENTAL CARIES.

"Are the teeth more liable to become carious during pregnancy?" is the question asked by Dr. R. Peterson (M. D.), in a paper read before the Grand Rapids Dental Society.† Assuming the affirmative, and accepting the chemico-vital theory of caries as expounded by Dr. W. D. Miller, he considers the various theories advanced in explanation of the admitted increase of caries during pregnancy.

He fails to find any scientific foundation for the theory that the lime-salts are abstracted from the teeth to supply the demands of the foetus, the fact that the teeth are not supplied with any system of absorbents being the most serious drawbacks to this theory; also the facts that more than sufficient lime-salts are ingested from ordinary food supplies, and that an excess of phosphates is found in the system.

He attaches no value to the suggested neglect of hygienic care of the mouth, pregnancy occurring at an age when personal habits are well established, the usual bad taste in the mouth, etc., being

* Items of Interest, May, 1895.

† Cosmos, March, 1895.

an incentive to increased rather than lessened use of the tooth-brush, mouth-washes, etc.

The most rational theory is that of changes in the character of the oral secretions, consequent upon changes in the blood and disturbance of nutrition. Increased acidity of the secretions would cause decalcification of the enamel, furnishing a more favorable soil for the development of micro-organisms. He quotes from an article by Dr. J. E. Kelly, *Journal American Medical Asso.*, ascribing this condition of the blood to lithemia, showing a parallel, if not an identity between the constitutional tendency produced by lithiasis and pregnancy, both originating in a grave disturbance of nutrition, presenting a similar modification of the blood, close resemblance in pathological changes, identical functional disturbances, and similar sequelæ.

The practical deduction is the indication of anti-lithemic treatment by the family physician as well as the local treatment of caries by the family dentist.

GOUTY PERICEMENTITIS.

In a paper read before the Academy of Stomatology,* Dr. E. T. Darby adds this to the already long list of names expressing the different plans of what was long known as Riggs' disease. He quotes from the papers of Drs. Pierce and Black, on the character and function of the alveolo-cemental membrane and the morbid influences to which it is susceptible, especially in connection with uric-acidemias, and describes several cases of apparent abscesses on the roots of vital teeth with gingival margin intact in the earlier attacks, pockets subsequently developing, with serumal calculus on the roots—cases difficult to account for except upon the theory of constitutional vice.

In the discussion Dr. M. L. Rhein spoke of the etiological classification of pyorrhœa alveolaris, as presented by him before the *American Dental Asso.*, in the causes of pyorrhœa being as prolix as the diseases we are liable to meet with. He said that he had spent sometime in visiting the medical wards of a large hospital in New York, examining the mouth of patients under treat-

*Cosmos and International, April, 1895.

ment for various diseases both acute and chronic, and in none of them found a healthy mucous membrane. From his observations he had reached the conclusion that we are liable to have a pyorrhœal condition follow any form of disease, that will depress the nutritive action. The tissue that soonest feels the paucity of nutrition is that reached by the remotest capillaries of the circulatory system—namely, the peridental membrane and the gingival border along the roots. In uric acid cases of abscess or pockets as described, Dr. Rhein invariably devitalizes the pulp of the affected teeth in view of the liability of similar deposits in the pulp itself, with the terrible neuralgic conditions met with from that cause. Dr. Kirk said that he still has under observation the cases described at a previous meeting, (see *Register* p. 238,) and thinks that the mechanical resistance of the soft tissues determines whether the tophic abscess of gouty pericementitis shall break directly through the gum tissue and then heal up, or break along the side of the tooth leaving a fistulous tract open at the gingival margin. He described a case in which tartar-lithim treatment and anti-gout regimen had arrested very rapid erosion—a case in which gold fillings on the labial surface of the anterior teeth, inserted six months previously the cavities being the result of erosion—were “standing up like islands in the midst of the sea, the tooth surface melted away from around them.”

Dr. H. H. Burchard ascribes the conditions to a constitutional vice leading to the retention of an excess of uric acid in the circulating fluids which, acting as an irritant, stimulates abnormal cell activity. The odontoblasts being thus stimulated to greater activity the dentine becomes more dense, the pulp itself being sometimes obliterated.

Following the stimulative and the irritative stages would be the necrotic stages, necrosis preceding the deposits. The necrotic tissues having an acid reaction, the urates, insoluble in acids, are precipitated in this urea.

Dr. H. M. Cryer described a case similar to one of those described by Dr. Darby; Dr. Louis Jack also described three cases, which, though dissimilar, illustrate the influence of gouty diathesis upon the pericemental membrane.

CHRONIC ALVEOLAR ABSCESS WITH COMPLICATIONS.*

DR. TRUMAN W. BROPHY, in this paper, considers the various complications which are met with in cases of chronic alveolar abscess which fail to respond to the usual treatment of cleansing the canals, and the use of antiseptics and stimulants. This may be a denuded apex from which the pericementum has been destroyed by the process of suppuration, the carious bone surrounding the apex gradually breaking down. If a superior incisor, the fistula may extend into the nasal passage; if an inferior, it may extend as low as the clavicle, or even to the nipple. If a superior bicuspid or molar, the pus may find its way into the nasal passage, or it may extend into the antrum, or back into the tuberosity of the maxillary bone and into the spheroidal fissure. If the pus finds its way into the Antrum of Highmore, filling the cavity and closing the natural opening from the antrum to the nasal passage, there may be an elevation of the floor of the orbit, through which the pus may penetrate and escape from the corner of the eye, deceiving even a reliable ophthalmologist. Again, it may find its way into the cancellated structure of the superior maxillary bone, either making a fistulous opening in the palate or elevating the periosteum, separating it from the bone and forming a large fluctuating mass beneath this membrane. The bone, thus deprived of its periosteum, is liable to become either carious or necrosed, according to the vitality of the individual.

Another complication is that of apparent pyorrhœa alveolaris, the pus discharging at the gingival margin, being, in reality, a discharge from an alveolar abscess. This may result from partial death of the pulp, as in the buccal roots of a superior molar the living pulp in the anterior root keeping the patient in constant pain; in this case, may respond to tests for vitality, and yet have the discharge of pus from an alveolar abscess. In such cases there is the liability of accumulation of pulp nodules in the vital tissue of one root, the other root having an abscess at the apex.

In conclusion, he urged the importance of careful and thorough diagnosis. "Deformities, permanent physical infirmities,

* Review, April, 1895.

septicæmia and loss of life, are so frequently due to the complications of chronic alveolar abscess that a fuller comprehension of the subject should be acquired."

THE FUNCTION OF THE PALATAL RUGÆ.

DR. H. BURCHARD* attributes to the rugæ the hitherto unmentioned function of assisting the tongue in its government of the position of food during mastication, the muscles of the tongue giving a somewhat wavy motion as it engages, progressively, the succeeding rugæ, thus gathering the bolus of masticated and insalivated food into the longitudinal furrow of the tongue, and squeezing it back towards the muscles of the soft palate, and the dorsum of the tongue by which it is propelled toward the pharynx, this latter being the earliest stage of deglutition mentioned by the text-books on physiology.

The fact that the lower animals also have the rugæ support this view, making the recognized function of assisting in speech secondary to that of aiding deglutition.

SALIVARY DIGESTION.†

Recent experiments to determine the effect of saliva upon starch, under different conditions, especially the admixture of acids with other food substances, show, among other results, that "oxalic acid and vinegar are so strongly inhibitory of salivary digestion that they are wholly unfit to be taken with food. The greatly less, yet distinct, action of the acids of sour fruits in hindering the action of saliva upon starch explains the reason why many persons with weak digestion are unable to take acid fruits in connection with farinaceous foods."

THE FIRST PERMANENT MOLARS — THEIR RELATION TO THE FOUR JAWS OF MAN.

A paper, bearing this title, illustrated by superimposed diagrams showing the inferior maxillary in infancy, youth, middle life, and old age, by DR. J. E. CRAVENS, was read before the New Jersey State Dental Society,‡ the paper being a plea for the re-

* Cosmos, April, 1895.

† Odontographic Journal, May, 1895.

‡ Cosmos, April, 1895.

tention in the jaw of the first permanent molar as essential to the normal development of the anterior jaw. In the discussion of the paper Dr. B. F. Luckey would retain them only when the teeth are hard and well-organized, and the denture not crowded; otherwise he would remove all four; otherwise, with all the teeth of poor structure, and the cuspids and bicuspid crowded, the teeth at the age of fifteen or twenty will probably require filling on all the approximal surfaces. He cited the case of a young girl for whom, at the age of ten, he extracted one badly-decayed first molar, but could not gain her consent to the extraction of the other, which was, therefore, filled. At the age of sixteen there was not a carious cavity on the side where the molar was extracted, while six fillings were required on the other side.

MRS. DR. WHITE thought it possible that the badly-decayed filled first molar on that side had, perhaps, been sensitive and uncomfortable, and that the teeth on that side had decayed from not being used. She thought that if the mouth were carefully watched, and the gums promptly lanced for the eruption of the sixth year molar, they could more frequently be saved.

DR. J. G. PALMER thinks that extraction of these molars must result in contraction of the arch, which, if continued for two or three generations, will cause an increase rather than a decrease of irregularity. If any are extracted, it should be all four, to avoid a change in the median line.

HYPODERMIC MEDICATION IN DENTAL PRACTICE.

DR. W. W. COON read a paper before the Union Convention in Buffalo,* on the advantages offered by this method of medication, using the tablets as now furnished for this purpose. He suggests apomorphin as an efficient and prompt emetic; atropin to hinder pus formation and in combination with morphin as a local anæsthetic and sedative in alveolar abscess; caffenin for nausea or giddiness, or in case of depression following the administration of nitrous oxide; strychnin as a stimulant in the vaso-motor centers and tannin as an antidote to strychnin; ergot in hemorrhage following extraction; also digitalis in combina-

* Cosmos, April, 1895.

tion with ergot; nitro-glycerin in all cases of heart-failure, hysteria and as an antidote to cocain, etc.

RUBEFACIENTS AND VESICANTS.

DR. A. W. HARLAN (Union Convention in Buffalo*), thinks that these remedial measures are not taken advantage of by dentists in proportion to their value. Use blisters in inflammation and rubefacients in congestion. What the patient needs is a new sensation; this he gets with a blister or a rubefacient. To obtain the desired relief from rubefaction the rubefacient should cover ten times the inflamed area in a locality which will draw the blood elsewhere and relieve the tension on the arteries or arterioles. Oil of peppermint, oil of turpentine or oil of cloves will produce a reddening and when used over a large area will often so alter the blood current that there will not be anything more than swelling, without suppuration.

COAGULANTS—SELF-LIMITING.

DR. A. W. HARLAN read another paper before the Chicago Dental Society† illustrated by new experiments to prove his position that "coagulating agents prevent their own diffusion through dentine where there is a coagulable material in the dentine tubes." In pulpless teeth that have contained putrescent pulps and putrescing matter for a long time the use of coagulating agents is to be avoided, as stated by Dr. Harlan, for the reason that being self-limiting they seal within the substance of the dentine the poisonous matter which ultimately escapes through the cementum and pericementum, giving a permanent lameness to the tooth which suffers from time to time from soreness and elongation, due to the imperfect sterilization of the poisoned dentine.

In the discussion Dr. E. L. CLIFFORD said that in case of subsequent trouble at the apical foramen he had invariably found systemic medication sufficient to relieve the pathological conditions, and had not found it necessary to remove root-fillings. He thought the dentist should be sufficiently familiar with the

* Cosmos, April, 1895.

† Review, April, 1895.

fundamental principles of medicine to relieve these conditions. This soreness is not always an evidence of failure, but rather of nature's effort—an acute condition necessary to bring about the regeneration of tissue, throwing out a membrane to encyst the end of the root.

DR. CROUSE said that under such conditions he should expect his patients to leave him and go to some other dentist for relief. He would not know how to apologize to a patient for a swelled face after treatment of his teeth.

DR. L. OTTOFY thinks that the conditions in all such experiments are too far removed from those existing with the teeth in the human mouth to be regarded as practically conclusive. The teeth as we treat them are at the temperature of the body, surrounded by a medium that is alkaline and constantly changing as the blood current surrounding the root of the tooth changes. The reverse of all these conditions obtains in the experiments, the results of which are under discussion.

HYDROGEN DIOXIDE.

DR. GEO. S. ALLAN gives in some notes on Hydrogen Dioxide,* a statement of what it really is, and why it is so valuable. The affinities of oxygen are many and strong and by its attraction for some of the elements entering into the composition of disease-germs and decomposing animal and vegetable matter, it breaks them up, forming new and harmless substances. The value of hydrogen dioxide lies in the pure fresh oxygen it furnishes. In its pure stage it is a dangerous chemical curiosity. In its available form it is held in aqueous or etherial solutions of varying strength and stability. The U. S. Pharmacopœia standard preparation is a three percent solution equivalent to ten volumes of available oxygen for one volume of solution. Brands of greater strength than this are shown not to possess good keeping qualities. "Pyrozone" three percent is shown to possess, in greater degree than any other brand in the market, freedom from excess of acid, poisonous barium salts and other impurities. The etherial solutions, a pyrozone 5 percent, and 25 percent have the added advantage to the dentist of the aid of ether in dissolving the fatty

*International, April, 1895.

matter encountered, and penetrating the dental tubuli carrying with it the $H_2 O_2$, the evolution of gas in the tubuli forcing the contents out leaving them in a clean, healthy condition. The 25 percent solution answers the same purpose as sodium peroxide with the advantage of being always ready for use.

Editorially* the possibilities of bleaching discolored teeth by the adaptation of the cataphoric method, using 25 percent pyrozone, is shown as follows. Let a pledget of cotton, saturated as above be introduced into the pulp chamber and touched with an electrode as the positive pole of a battery of low tension, the negative electrode being either held by the patient in the hand or applied to the outer enamel surface of the tooth. By this method pyrozone is driven to the ultimate ramifications of the tubuli and the oxygen is set free in direct contact with any organic debris present. The writer says this method has been tested with most satisfactory results, being in point of rapidity and efficacy far superior to applications of the same agent without the aid of the electric current.

Dr. Albert Westlake† describes this method of restoring the normal color of teeth in a few minutes, in three cases, the first experiment in this line being made March 8th. The tooth was filled immediately after bleaching, the effect on the periosteum and adjacent tissues being apparently beneficial. In the second case the application was too long, the canal filled with cement, offering greater resistance. The tooth was extremely bleached. The third case was similar to the first.

THE FAUNA OF DEAD BODIES.

According to M. MEGUIRE‡ the decomposing body is reduced to dust through the aid of microbes and small insects, each stage of decay being characterized by specific organisms which are so definitely associated with successive stages of the putrefactive process that the length of time which may have elapsed since the death of the animal or person may be very accurately estimated by careful determination of the character of the microbes and in-

*Cosmos, April, 1895.

†International, April 1, 1895.

‡Odontographic Journal, April, 1895. (From *Modern Medicine*.)

sects present. This constitutes an important factor in medical jurisprudence affording additional data in determining the length of time which has elapsed since death, often an important and puzzling question.

HIGHER DENTAL ETHICS.

DR. J. H. SMYSER, in a paper read before the Odontographic Society, of Chicago,* said that although the doctrine of ethics lacks the elements that enter into the definition of science, yet a sufficient number of propositions or principles are universally accepted to form a firm basis for the doctrine—the highest and noblest branch of speculative philosophy.

But while the principles of ethics are thus universally accepted by professional men, it is in the practical application of these principles to every-day practice that “the faith that is in us” is put to the test. He thinks that the general disregard of ethics among dentists is largely due to the example set to their students by the dental colleges in the conduct of infirmary practice, citing as an example the “appointment cards” given out to patients, the assertion “charges made for materials only” being so largely at variance with the prices exacted for the fillings and other work done by the students, who are thus given, at the very outstart a very impressive lesson in dishonesty and disregard for the principles of ethics. So many of the so-called colleges are conducted as money-making mediums, offering any and all kinds of inducements to students, regardless of ability, character or previous condition, the only things needful being a certain amount of time and money, and a specified amount of operative and mechanical work representing so much cash for the college. Excluding a few of the better colleges, the teaching and influence of most of the colleges have a lowering, instead of an elevating, effect upon those brought in contact with them.

Dr. Smyser also considers the exorbitant fees demanded by some among “the upper crust” a means of breeding distrust and destroying the ethical relations between the public and the profession. Our aim should be to show to the world that we are public benefactors, honest with each other in all our deal-

* Dental Review, May, 1895.

ings, carrying out to the letter what is implied by the Golden Rule.

In the discussion DR. J. G. REID said that ethics is simply honesty, whether in commercial pursuits or in professional relations. The unethical man, wherever found, is given up to the greed of gain.

DR. MAURICE KRAUS says that until the professors in the colleges are paid by the government, and thus made independent of the patronage of the people, they will never be governed by ethical principles.

DR. J. E. NYMAN compared the ethical and the non-ethical practitioner to the artisan and the artist; the one worked for his pay, the other puts his soul into his work regardless of remuneration.

DR. EDMUND NOYES considers that a man who allows his name to be placed upon a society programme and fails to fulfill his promises, sending no notice of inability and no apology afterward, violates the code of ethics as truly as the advertiser, and should be punishable with expulsion without trial. The unwritten code of ethics, in its application to dealing with the patients of brother dentists, was discussed at some length, no rule applicable to all cases being found other than the Golden Rule in its broadest sense.

DR. C. J. ESSIG, in a paper read before the Academy of Stomatology, Philadelphia,* attributes the frequent violations of the strict interpretation of the code of ethics not so much to a want of honor, or to greed, as to the absence of that scientific spirit which should guide the practitioner in the treatment of the dental organs. Science teaches us *to know*, and art *to do*—dentistry, as practiced, being an art; his filling materials are therapeutic agents, therapeutics being itself essentially the art of medicine. The absence of *esprit du corps* and indifference to ethics he attributes to a variety of causes—as an inheritance from predecessors who flourished previous to the dental colleges, to the (fortunately diminishing) number of recruits entering the

* International Dental Journal, June, 1895.

dental profession from commercial life bringing with them the ethics and ideas of the shop, etc.

Many striking instances were cited in the paper of lack of *esprit du corps* and unethical methods in dealing with the patients of other dentists, which he considers not as exceptional but as typical cases.

The remedy is to be found not in the arraignment of individuals, but in the improvement of methods.

Dental caries must be studied from the prophylactic and therapeutic standpoints as a disease subject to rational, systemic treatment, medicinal and hygienic. He says: "A properly regulated diet with systemic physical exercise, for the purpose of promoting assimilation to the extent demanded by nature for a normal condition of all the organs of the body, would do much to control and even cure dental caries. Does it not then seem that a more rational treatment would consist in a hygienic system which would so build up the tooth-structure that it would be capable of retaining the mechanical stoppings over which we spend so much time, skill and patience and that would reduce the recurrence of caries to a minimum?"

The discussion dealt largely with the subject of ethical dealing with the patients of other dentists and the requirements of honor toward the patient, toward the profession and toward ourselves.

DR. CURRIE said our profession requires of us that we tell the truth—the patient demands our best judgment. Should we permit our charity to cover a multitude of unsightly things?

DR. JAS. TRUMAN said there is a wide margin for honest difference of opinion, and while it is not necessary to say anything derogatory of our brethren we must still give an honest judgment on cases presenting.

DR. GUILFORD said in most of what had been said it has been from the standpoint of the dentist; that is all right, but we want to consider the patient also. * * There is no use of trying to uphold another dentist when he has been careless or done wrong.

DR. BURCHARD said what the world needs is the develop-

ment of more of the altruistic spirit and less of the egoistic spirit. By that I think all differences of this sort will be solved.

In a paper by DR. J. F. BURKET, read before the New Jersey State Dental Society,* the history of ethical thought was traced back to the time of Demosthenes and Socrates, the modern code of ethics governing professional conduct being the result of the concensus of the philosophical thought of the ages. With the defects of the old code to admonish, and added experience to enlighten, we may hope for a future code that will measure up to the standard of our present conception of the relationships and duties of professional life, and which will secure to each member that freedom which is one of the prime functions of a code. Voluntary obedience to the spirit of a code of ethics can only be secured through the elevation of the character of the individual. Through a demand on the part of the colleges for nobility of character in matriculates, the ethical standard of the profession will be raised. Back of this lies character-building in the home.

In the discussion of the subject DR. B. HOLLY SMITH said that he looks forward to the time when every man who received a diploma from a dental college shall be required to subscribe to a code of ethics; violation of the code to abrogate his rights to practice under the diploma.

DR. MAXFIELD having criticized Dr. Miller's remarks about varying his treatment of patients according to the size of the pocket-book, Dr. Wm. H. Truman took the defensive, saying that it is more in accordance with the true spirit of the code to render simple and inexpensive, but good and honest service for a poor man, than to take a month's wages from him for the highest style of art. Our methods should be adapted to meet the needs of the patient on the same grounds that a physician, who would prescribe a sea-voyage or six months in southern France or Italy, would advise the mechanic's wife very differently. Treatment adapted to the patient's means is no violation of the code.

* Cosmos, March, 1895.

COMMENCEMENTS.

Ohio Medical University—Dental Department.

The fourth annual commencement exercises of the Ohio Medical University, including the Dental Department, were held in the Board of Trade Auditorium, Columbus, Ohio, on Tuesday evening, March 17, 1896.

The annual address was delivered by John B. Hamilton, M. D., LL.D., and the faculty address by George M. Waters, A. M., M. D.

The number of dental matriculates for the session was sixty-two.

The degree of D.D.S. was conferred on the following graduates by John M. Dunham, A.M., M.D., President of the Board of Trustees:

NAME.	RESIDENCE.	NAME.	RESIDENCE.
Harry E Brubaker.	Ohio	George L Miller	Pennsylvania
Augustus W Callinan	Ohio	Thomas M Pattercon.....	Ohio
Harry Cope	Ohio	James F Richeson	Ohio
Abbot G Dana.....	Massachusetts	John J Stukey	Ohio
Elmer E Edenburn	Ohio	Owen H Thorpe	Ohio
Edwin S Fuller.....	Ohio	Ezra S Wagner	Ohio
George T Howard.....	Ohio		

Chicago College of Dental Surgery.

The fourteenth annual commencement exercises of the Chicago College of Dental Surgery (Dental Department of Lake Forest University) were held in the Schiller Theater, Chicago, Ill., on Tuesday, April 7, 1896, at 2 P. M.

The doctorate address was delivered by C. N. Johnson, L.D.S., D.D.S., and the valedictory by William H. G. Logan, D.D.S., of the graduating class.

The number of matriculates for the session was four hundred and forty.

The degree of D.D.S. was conferred on the following gradu-

ates by Truman W. Brophy, M.D., D.D.S., LL.D., President of the College:

NAME.	RESIDENCE.	NAME.	RESIDENCE.
John E Aigley	Illinois	Robert J Hood	Illinois
Edward S Allen	Wisconsin	Charles H Hurlbut	Illinois
George Appel	Germany	George E Huwatehek	Wisconsin
Oro DeG Babcock	Michigan	George Hulla	Illinois
Augustus B Bailey	Oregon	George W Johnson	Illinois
Francis A Ballard	Iowa	George V Kohn	Wisconsin
Charles A Banghart	Canada	Othello L Kerr	Missouri
Samuel G Barker	Wisconsin	Carl Klein, jr	Illinois
George T Boon	Kansas	Floyd C Lander	Illinois
Fred C Bradnor	Indiana	C O Letourneau	Illinois
Samuel E Burke	Michigan	John A Locheed	Illinois
Wm G Burkhardt	Illinois	W H G Logan	Illinois
George H Bush	Wisconsin	Frank S Lombard	Illinois
Albert O Boehmer	Canada	Roderic S Maloney	Indiana
Reuben C Brophy, M.D.	Illinois	Benjamin F Martin	Illinois
William T Bell	Canada	Archibald McArthur	Wisconsin
William F Bevan	Illinois	Hugh W McMillan	Illinois
Aksel T Bovesen	Minnesota	James D McMillan	Illinois
Edward F Caldwell	Illinois	George H Madill	Canada
Louis P Cardwell	Illinois	Charles S Methven	Illinois
Russell V Cleveland	Illinois	Cornelius J Murphy	Illinois
John H Conant	Wisconsin	Edward J Murray	Illinois
J H Cunningham	Wisconsin	Neil P Nelson	Minnesota
F A Crookshank	Illinois	Ingvald Nesheim	Norway
Herbert J Calkins	Wisconsin	Sheldon Peck	Illinois
Charles T Chandler	Wisconsin	George W Pitts	Illinois
John T Carpenter	Wisconsin	L G A Powell	Indiana
David St I Davies	North Dakota	Michael J Prendergast	Canada
Charles C Devereaux	Iowa	William A Quinn	Michigan
John B Dicus, B.S., A.B.	Illinois	Wilbert C Reid	Michigan
James Dodd, B.S.	Illinois	Frederick W Rose	Canada
William P Deurre	Minnesota	Alvah I Sargent	Illinois
William H Dunn	Illinois	Howard L Simmons	Illinois
Charles C Dutton	Iowa	Frank L Smith	Illinois
Albert E Eberhart	Minnesota	Claud H Snashall	Wisconsin
Timothy A Egan	Michigan	Frank F Snedecor	Alabama
Jerome W Egbert	Illinois	LeRoy Snowden	Illinois
George Eggers	Wisconsin	James H Steele	Kansas
Joseph Eggers	Wisconsin	Frederick W Stephan	Ohio
Charles J Fahsel	Illinois	Albert B Stil	Illinois
John M Falvey	Wisconsin	John A Sroeckley	Indiana
Owen L Frazee	Illinois	Alvin G Sturtz	Illinois
John F Fribley	Illinois	Wm L Selsor	Illinois
Clyde C Fergusson	Canada	Gilbert R Tait	Wisconsin
Edward H Goodsell	Minnesota	James R Talpley	California
Matthew L Gregerson	Wisconsin	Mark W Trade	Illinois
Wm S Griffiths, jr	Wisconsin	Edward H Varnum	Illinois
Augustus D Groshon	Illinois	John R Watt	Illinois
D J F Hager	Canada	Frank A Weld	Illinois
Arthur B Howatt	California	Marshall G Wheeler	Alabama
Frederick M Heiden	Wisconsin	Nelson B Winter	Iowa
Ashley M Hewett	Illinois	Charles L Wyeth	Ohio
Fred J Holt	Colorado		

American College of Dental Surgery.

The tenth annual commencement exercises of the American College of Dental Surgery were held at the Grand Opera House, Chicago, Ill., on Monday, April 6, 1896, at 2:30 P. M.

The number of matriculates for the session was four hundred and twenty.

The doctorate address was delivered by Rev. P. S. Henson, D. D., the valedictory by Thomas G. Thompson, D.D.S., and the salutatory by Charles C. Lind, D.D.S.

The degree of D.D.S. was conferred on the following graduates by Henry Wade Rogers, D.D.S., President of the University:

Will O Asslen
William G Andrews
William Miller Ash
Walter Runnells Adams
Fred L Axtell
J F Boynton
J A Birchard
Carl S Byrnes
Joseph M Bischoff
A T Baxter
George M Berry
F H Bigness
H A Bear
John P Brunton
Charles Ellis Bartholf
F H Blaschka
James W Birkland
A G Bauer
Ellis R Boston
Polk Huntingdon Brown
A B Clark
J Truman Clark
William M Choate
Marcus H Cox
W E Carr
George M Dott
A John Davis
James E Dale
Marie Erickson
Francis J Freeman
W O Fellman
G H Frey
W J Ferguson
Arthur Paul Fillastre
Harry J Feltus
James R Goodrich
Samuel L Gants
Peter Gibson
D C S Garver
J C Gardiner
L Harrison Grove

W B Graham
Ray N Gibbs
L O Green
Sara Conklin Gramm
Mary Maloy Hawley
Frederick W Heineman
George S Hilliard
W B Hall
E V Harvey
Jacob C Hay
I B Howell
A W Head
F M Hole
John C Hamill
A J Hullinger
Charles H Jordan
L E James
J J Jackson
Samuel Jessup
D J Kuns
Bert H Kershaw
C L Kinney
Anna Marie Kirkeberg
Howard Hersey Kellogg
Herman Kuchler
C R Leidig
C Lincoln Lind
Duchamp Charles Labbe
Charles J Lyons
G D Libby
H E Macdonald
J Laurence Morris
H H Maynard
Arthur J Mears
Ida L Menges
J K Means
John McDermid
Alfred D McCabe
F E McCarthy
J N McDowell, B.S.
Murray Lee Ong

M L Opheim, B.S.
D W Pratt
Samuel Hale Potter
A A Peterson, Ph.G.
A D Ratcliff
Francis G Richardson
G H Rolling
J H Reid
Anson F Poley
Frank Alexander Ross
Earle H Reaugh
J W Smith
Louis J Smith
O E Simpson
P D Silvernail
Charles E Stutenroth
Albert Stroebe
H H Straith
Wilber E Sackett
Edgar C Severns
M V Secrist
H C Spengler
T G Thompson
S A Turpin
L L Whitson
George E Wasser
S V Weiser
Clem White
Clark M Wilson
Louis M Williams
Harry Alexander Ware
L D Woltzen
G O Whitwam
Arthur E Young
Edmund L Yard
A O Yearian
A E Younkin
F B Young
J E Zipf
Emanuel Z Zipperman

Western Dental College of Kansas City.

The sixth annual commencement exercises of the Western Dental College, of Kansas City, were held at the Auditorium, Kansas City, Mo., on Thursday evening, April 2, 1896.

The annual address was delivered by W. P. George, D.D.,

LL.D., the faculty address by W. F. Kuhn, A.M., M.D., and the valedictory by Thomas W. Lyell, D.D.S.

The number of matriculates for the session was two hundred and twenty.

The degree of D.D.S. was conferred on the following graduates by D. J. McMillen, M.D., D.D.S., Dean of the Faculty :

NAME.	RESIDENCE.	NAME.	RESIDENCE.
Herman F Branstetter.....	Missouri	William Dillingham Kirby....	Kansas
William Broadbent	Missouri	Frank Gilkeson Lobban	Missouri
Edwin Sever Brown	Missouri	Thomas Walter Lyell.....	Missouri
Edgar Pearson Brown.....	Missouri	Francis Marion McDonald	Texas
Clarence Manfred Burris.....	Iowa	Thomas McMillan	Missouri
Willis Victor Chapin	Kansas	Welby Stanley Morrow.....	Iowa
Christopher C Clark	Missouri	Joseph Shelby Mirick.....	Missouri
John Logan Clark	Missouri	Ralph Hammond McCrum	Missouri
Russell Elmer Covey.....	Missouri	Omar Preston Muckley.....	Ohio
Edward Abner Dabbs	Missouri	Orin Knisley Muckley.....	Ohio
George Whitman Downing ..	Missouri	John A Parker.....	Missouri
Fannie Delaney.....	Missouri	John Robert Pepper	Missouri
Albert Ulysses Edwards.....	Indiana	Henry Bosworth Purl	Missouri
Martin Frederick Ehlers.....	Missouri	Harley John Riley	Missouri
William Walter Flora	Kansas	Noah Richard Smith.....	Missouri
Theodore Green.....	Illinois	Theophilus Paul Smith	Missouri
Samuel Wilson Harris.....	Missouri	John August Steinmeyer	Kansas
Morton David Hamisfar.....	Missouri	James Campbell Thompson ..	Missouri
John Frank Huntling.....	Nebraska	John Elias Watkins.....	Kansas
Evan D Jenkins	Kansas	Charles Delosso Weakley.....	Missouri
George Francis Kelly	Kansas	Fred Emory Webster.....	Kansas
Richard Hiram Kent	Kansas	Linsey Leonidas Wills.....	Missouri

Royal College of Dental Surgeons of Ontario.

On the 21st of April the Directors of the Royal College of Dental Surgeons had under consideration the report of the Examiners for the session just closed, and have handed out the results as follows :

The number of students registered and in attendance for the session of 1895-96 was one hundred and sixty-one.

The following passed the final examinations and received the title of L.D.S. (Licentiate of Dental Surgery) :

W F Adams	G W Hoag	C E Pearson
R M Armstrong	O H Hutchison	Percy Smith
T E Ball	J E Johnston	A T Sihler
F Britton	W E Lundy	J A Simpson
J J Brown	J L Leitch	W J Switzer
W Burnet	L M Mabee	J G Somerville
J M Bell	F S Mercer	W F Templar
L G Campbell	J F McMillan	W C Trotter, B.A.
H A Croll	H McQueen	Ed D Washington.
R N Henderson		

Ohio College of Dental Surgery.

The fiftieth annual commencement exercises of the Ohio College of Dental Surgery (Department of Dentistry of the University of Cincinnati), were held at the Odeon, Cincinnati, Ohio, on Tuesday evening, April 14, 1896.

The annual address was delivered by Rev. E. Trumbull Lee, D.D., and the class address by Fenimore Roudebush, D.D.S.

The number of matriculates for the session was two hundred and fifteen.

The degree of D.D.S.¹ was conferred on the following graduates by Dr. Frank A. Hunter, President of the Board of Trustees:

NAME.	RESIDENCE.	NAME.	RESIDENCE.
Virgil V Adkins.....	West Virginia	Alonzo M Miller.....	Indiana
Wm A Blackwell	Illinois	John W Miller	Ohio
James E Boyd	Ohio	Thomas M Pearce	Kentucky
Leon E Boyd	Ohio	Thomas S Phillips	Ohio
James T Campbell	Kentucky	Sam Shaw Phister	Kentucky
Lewis C Cowden	Ohio	John S Recob	Ohio
Charles S Dunham	Colorado	Fred F Rice	Ohio
Charles V Dye	Ohio	Warren A Robison	Indiana
Reichart Erdman	Ohio	Fenimore Roudebush	Kentucky
William B Forsythe	Ohio	Lewis L Ross.....	Kentucky
Wilson Foster	Ohio	Sallie K Runyon.....	Indiana
Frank W Frey	Ohio	Oscar F Schleaf	Missouri
John C Goreis.....	Ohio	Herbert A Schaffer	Ohio
E E Hackleman	Indiana	Milton H Schaffer	Ohio
Frank Harding.....	Indiana	Edward C Sherman	Ohio
Wm F Heisel	Ohio	James H Shields.....	Indiana
Sam'l D Hockman	Ohio	Carl M Simonson	Minnesota
Harry S Hopkins	Indiana	William H Stacy.....	Kentucky
Clair M Hulley.....	Ohio	Florence E Taylor.....	Ohio
Burt L Lackey	Ohio	Albert E Thompson	Kentucky
Joseph Lang	Ohio	Arthur P Walton	Kentucky
Arthur J Markley.....	Kentucky	Leonard H Wilson	Canada
Karl L Mayers	Ohio	Theodore C Workman.....	Ohio
William B McKee.....	Ohio		

Columbian University—Dental Department.

The ninth annual commencement exercises of the Dental Department of the Columbian University were held in Metzerott Hall, Washington, D. C., Tuesday, May 5, 1896, at 8 o'clock, P. M.

The address to the graduates was delivered by Professor L. C. F. Hugo, D.D.S., and the valedictory by Joseph L. Egan, D.D.S.

The degree of D.D.S. was conferred on the following graduates by B. L. Whitman, D.D., President of the University :

NAME.	RESIDENCE.	NAME.	RESIDENCE.
R V Barry	Dist. of Columbia	L J Broughton	North Carolina
E F Coneklin	Rhode Island	Joseph L Egan	Connecticut
W S Hall	Alabama	Harry A Jelly	Maryland
L Jordan, M.D.	Mississippi	Hubert L King.	Dist. of Columbia
S C Luckett	Texas	John A Moore	Indiana
H B Moore	Dist. of Columbia	J R Stewart	Virginia
R E L Wiltberger....	Dist. of Columbia	J L Whiteside	Maryland

Atlanta Dental College.

The annual commencement exercises of the Atlanta Dental College were held at the Grand Opera House, Atlanta, Ga., on Thursday evening, March 26, 1896.

The valedictory was delivered by C. E. Hines, and the address to the graduating class by Dr. V. E. Turner.

The number of matriculates for the session was two hundred and two.

The degree of D.D.S. was conferred on the following graduates by Dr. J. S. Hopkins, Vice-President of the Board of Trustees :

NAME.	RESIDENCE.	NAME.	RESIDENCE.
E T Boothe	Georgia	R J Kennedy	Georgia
C W Ball	Georgia	J W Kelly	South Carolina
R W Bragg	Virginia	Edgar Jackson	Georgia
C W Baker	Alabama	C C Jordan	Georgia
L W Burt	Georgia	W A McGee	Georgia
E C Colley	Louisiana	J M McGeo	Georgia
Peter Colcough	Georgia	W M McRae	Georgia
P M Caillouet	Louisiana	W K Meeks	Georgia
H J Cunyus	Texas	R M Mason	Georgia
C V DeLoach	Georgia	J W Manning	Alabama
W R Davis	North Carolina	W B Nichols	Mississippi
E P Frazier	South Carolina	J D Adeneal	Mississippi
A G Gilder	Texas	W G Sharp	Georgia
E F Gillon	Massachusetts	D A Spence	Georgia
H C Hopkins	Georgia	J G Reid	Georgia
C T Hall	Georgia	H M Todd	South Carolina
C A Holyendorf	Georgia	G E West	Mississippi
W P Hansard	Georgia	L J White	South Carolina
C E Hines	Mississippi	J T Wester	Georgia
J A Hightower	Alabama	D M Yates	Alabama

Cincinnati College of Dental Surgery.

The annual commencement exercises of the Cincinnati College of Dental Surgery were held at Sinton Hall, Cincinnati, O., on Thursday evening, April 2, 1896.

Remarks were made by the Dean, Professor G. S. Junkerman, M.D., D.D.S., and the valedictory address was delivered by Professor William O. Sproull.

The number of matriculates for the session was thirty-eight.

The degree of D.D.S. was conferred on the following graduates by Hon. Francis B. James, LL.B., President of the Board of Trustees:

NAME.	RESIDENCE.	NAME.	RESIDENCE.
Jasper N Bradford	Kentucky	Theodore C Gelhaar.....	Wisconsin
William K Chambers.....	Indiana	Beaumont H Kaighn.....	Kentucky
Ollie D Doran	Iowa	Frank R Smith	Ohio
Aaron Grodsky.....	Ohio	Leslie D Spence	Ohio

New York College of Dentistry.

The thirtieth annual commencement exercises of the New York College of Dentistry were held in Chickering Hall, New York City, on Thursday evening, May 14, 1896.

The address to the graduates was delivered by Professor J. W. Dowling, M. D., and the valedictory by Clark A. Heydon, jr., D.D.S.

The number of matriculates for the session was three hundred and thirty-seven.

The degree of D.D.S. was conferred on the following graduates by F. F. Vander Veer, President of the Board of Trustees:

L H Abel	F H Giesselmann	W A Sanderson
C M Aden	H F Hammer	Moritz Schlesinger
C H Allen	E W Harlan	H C Seobey
C E Andelfinger	C F Harreus	H M Shaley
T R Augsburg	Otto Herbhoid	DeWitt C Smith
W S Barber	C A Heydon, jr	Harris Smith
J B Besant	H K Howard	W M Smith
J T Brickell	W A Kregeloh	F B Spooner
B A Burns	M C Kohler	G R Stein
R B Carr	B G De Laval	W M Sullivan
H O Carson	F B Le Roy	R W Sweetser
A L Del Castillo	R C M Lieneau	Burton Talmage
G R Clark	Adolph Lifshutz	J F Thompson
W S Currie	Leo Mandelstamm	F L Tooley
Washington Dailey	R B L Magruder	Charles Vetter, jr
A M Desnoes	G W Marshall	Emil Vejvoda
L R Devine	Hector DeMarchena	G W Wakeley
E A Du Brul	F H Miller	W S Waterbury
F S Downs	A J McCarthy	R S Watson
T S Dunning	J M McCormack	Armin Wald
J B Farrell	G H Muth	W R Wengorovius, jr
J H Finney	J H Osiatinsky	I N Wheeler
C E Fraser, jr	J G Payne	W M Whitlock
Wilson Fitz Randolph	Sidney Phillips	F D Wygant
C J Gies	H J Pillion	

Harvard Dental College.

The annual commencement exercises of the Harvard Dental College took place, in connection with those of the other Departments of Harvard University, at Boston, Mass., on Wednesday, June 24, 1896.

The degree of Doctor of Dental Medicine was conferred on the following graduates by the President, Charles W. Elliot, LL.D. :

NAME.	RESIDENCE.	NAME.	RESIDENCE.
Francis H Barnard.....	Minnesota	Henry West Haley.....	Massachusetts
Edgar C Bienemann	England	Harvey W Hardy.....	Massachusetts
Asher H C Chase, Secs....	Massachusetts	Robert John McMeekin..	Massachusetts
Ernest Howard Chute.....	Massachusetts	Henry Horrill Haynes....	Maine
Charles Winfield Crane ..	Massachusetts	Jacob Francis Martin ..	Massachusetts
Harold DeWitt Cross.....	New Hampshire	Edward W Matthews....	Massachusetts
John G Emery	Massachusetts	Chas Everett Monroe....	Massachusetts
Edwin L Farrington	Massachusetts	Thomas Kennedy Ross ..	Massachusetts
Adelbert Fernald	New Hampshire	P J A Stadelmann.....	Germany
Gwido Webster Gilbert.....	Massachusetts	G Irving Sweet.....	Rhode Island
Henry Sargent Gilman....	Massachusetts	Chas Frederick York ..	Massachusetts

University of Tennessee—Dental Department.

The annual commencement of this Department was held in the Vendome Building, March 27, 1896. Prayer was offered by Rev. Dr. Morris, of the Methodist Church, after which Dr. W. O. Menzies, of Tennessee, was introduced, and delivered the class valedictory, which was a gem in its way, and elicited the admiration of all present.

Professor Jordon of the Academic Department was introduced, and addressed the class in brief but well-chosen words, after which, in the absence of Dr. Dabney, the President of the University—who was unavoidably absent or detained—he conferred the degree of D.D.S. on the following persons:

Dr. L. G. Nowell delivered the charge to the class.

There were in attendance, in the school during the term, fifty-four students.

NAME.	RESIDENCE.	NAME.	RESIDENCE.
J F Coyle.....	Alabama	W P Menzies	Tennessee
E B Fuller.....	Texas	S P Myers	Pennsylvania
James Harmon	South Carolina	J L Pennington.....	Tennessee
A F Hudson.....	South America	H L Sanders	Tennessee
R Lee King	Mississippi	F E Sandusky	Tennessee
Z W Moss	Missouri		

University of California—College of Dentistry.

The annual commencement of this institution was held at Old Fellows' Hall, San Francisco, Cal., on Thursday evening, June 18, 1896, at 8 o'clock.

The address on behalf of the faculty was delivered by Professor J. N. Williamson, M. D.

Hon. Martin Kellogg, A.M, LL.D., President of the University, conferred the degree of D.D.S. on the following named persons :

NAME.	RESIDENCE.	NAME.	RESIDENCE.
William H Abbay.....	California	George Morgan Harris	California
Henry Abrahm	California	Alex Hamilton Hawley ...	California
George Abrams	California	George Henry Haynes..	Brit. Columbia
Marilda Jane Ayers.....	California	Samuel William Hilliard...	California
Frederick Guerusey Baird ..	California	Guy Brown Husted.....	California
Mary Louise Baird	California	Konrad Magnus Lundborg...	California
Bertram Carl Boeseko.	California	Stephen Chol Maynard.....	California
Franklin Calvin Bonnel	California	Naoma Gae MacDonald	California
Charles Harold Bowman.....	California	Robert B McNutt.....	California
Albert Caferata	California	Thomas Snelling Morden.....	Idaho
Paul Tulane Carrington	California	Fred Gustave Pless.....	California
Harry George Chappell	California	Charles Bruce Porter, jr....	California
William Nathan Clark	California	Joseph Ignatius Richards...	California
Frank Herman Cranz.	California	Leon Joseph Roth.....	California
Jacob Cohn	Idaho	Miss Anna Martin Sawyer ..	California
Stephen J Cunningham.....	California	John Herbert Seager, A.B ...	Turkey
William Edward Davis.....	California	Frank Joseph Smith.....	California
James Morton Forrest, jr....	California	George Edward Stallman ..	California
Arthur A Fowler.....	California	Benjamin Mitchell Stieh....	California
H Edward Gedge.....	California	Montgomery Thomas	California
Amy Maxted Gilbert..	New South Wales	Oscar Tobriner	California
Charles Daniels Gilman.....	California	Clifford Todd	California
Lawrence Greenbaum	California	William Henry Ware	California
Richard George C Harms....	California	Lauren David Webster	California
Charles Edwin Hart	California	Clyde Allen Weldon	California
Arthur Phi ip Harth.....	Oregon	Edward Wm Westphal	California

University of Michigan—College of Dental Surgery.

The annual commencement of the University of Michigan was held in the hall of the University June 25, 1896.

The annual address was delivered by Charles Candel Adams, LL.D., President of the University of Wisconsin.

Upon this occasion were the commencement exercises of all Departments of the University.

There were, in the Dental Department, during the year just closed, one hundred and eighty-nine students—candidates for graduation, 58.

The degree of D.D.S. was conferred by Dr. James B. Angel, President of the University, upon the following named persons :

NAME.	RESIDENCE.	NAME.	RESIDENCE.
Elmer Harry Argetsinger..	Minnesota	Vernor Jay Lathrop.....	Michigan
Frank Charles Arnold.....	Michigan	John Adolph Lentz, LL.B....	Michigan
Jay Cyrus Arnold.....	Michigan	Howard Jos Livingston.....	Colorado
Frank Miller Bacon.....	Michigan	James White Lyons.....	Michigan
Clarence Harvey Bailey.....	Michigan	Thomas Stephen Mann.....	Michigan
John Wesley Bass.....	Indiana	Sam'l Stephen Mummery.....	Michigan
Eddie W Brown.....	Michigan	James Henry O'Toole.....	Michigan
Edward Dancey Brown.....	Ontario	Chas Augustus Phillips.....	Indiana
Robert R Buckthorpe.....	Illinois	Ross Porter.....	Pennsylvania
Harry Sizer Buell.....	Michigan	Frank Glenn Powers.....	Michigan
George Franklin Burke.....	Michigan	Herman Prinz.....	Ohio
Willis Hezekiah Buttolph....	Michigan	Charles A Ouackenbush.....	Michigan
Jessie Estelle Castle.....	Michigan	James Robins.....	Ontario
James Nelson Clarke.....	Michigan	William Howard Roper.....	Wisconsin
Charles William Cleaver.....	Michigan	Thos Francis Sheridan.....	Michigan
Jonathan P Collett, B.S. N. Nor. Univ		Charles L Sherwood.....	Pennsylvania
Irving William Copeland.....	Michigan	Charles Eyster Slagle.....	Illinois
Ernest Frank Day.....	England	Albert Lyman Smith.....	Michigan
Edwin Victor Deans.....	New York	William Joseph Stapish.....	Michigan
Charles Alphonso Devlin....	California	Morley Punch. Templar.....	Ontario
Stanford James Farnum.....	Michigan	Wilbur Townsend.....	Iowa
Stanley Ammon Farnum.....	Michigan	Albertus Van Ark.....	Michigan
Charles Frederick Fitch.....	New York	Charles Alfred Wehe.....	Kansas
Fred Anson Graham.....	Michigan	Ralph Levant Williams.....	New York
Fred Joseph Hale.....	Michigan	Raymond L Williams.....	Wisconsin
Hector Hillman.....	Michigan	Robert Millard Woodin.....	Michigan
Cleveland A Houghton.....	New York	George Herbert Wooton.....	Michigan
Burton Truman Hunt.....	New York	John Alexander Wooton.....	Michigan
Charles Lee Kemery.....	Michigan	Percy Bennett Wright.....	Michigan

University College of Medicine—Dental Department.

The annual commencement exercises of the Dental Department of the University College of Medicine were held in the Academy of Music, Richmond, Va., on Wednesday, April 29, 1896.

The annual oration was delivered by ex-Governor Fitzhugh Lee, of Virginia.

The number of matriculates for the session was thirty-six.

The degree of D.D.S. was conferred on the following graduates by Stuart McGuire, M.D., Professor of Principles of Surgery:

The number of matriculates for the session was three hundred and twenty-three.

NAME.	RESIDENCE.	NAME.	RESIDENCE.
F V Clarke.....	Virginia	J T Marshall.....	Virginia
W J Cowardin.....	Virginia	E C McSparran.....	Virginia
Geo D Farrow.....	Virginia	Chas A Newland.....	Virginia
Frank Ferguson.....	South Carolina	A C Oppenheimer.....	Virginia
M T Gay.....	Virginia	Wm Pilcher.....	Virginia
John H Hartman, jr.....	Virginia	E U Potter, jr.....	Virginia
W R Lyman.....	Virginia		

University of Denver—Dental Department.

The annual commencement of the Dental Department of the University of Denver was held Thursday evening, April 16, 1896.

Total number of matriculates twenty-eight.

An address to the graduates in Dentistry was delivered by Professor J. M. Norman.

Also an address of a more general character was delivered by Rev. James H. Ecob, D.D.

Chancellor McDowell conferred the degree of D.D.S. on the following candidates :

NAME.	RESIDENCE.	NAME.	RESIDENCE.
Louis Philip Paul	Colorado	Charles Lincoln Mercer	Colorado
Sallie Sherman Hanley.....	Unknown	Frank Miller Peck.....	Colorado
Alice Gertrude Grant...	Massachusetts	Elliott Sangster Miller	Colorado
Irvine Hunter.....	Colorado	Charles Eugene Baur.....	Colorado

Boston Dental College.

The annual commencement of the Boston Dental College was held in the Berkley Temple, June 19, 1896.

The general address was delivered by E. N. Capypin, D.D., President of Tuft's College.

The valedictory was delivered by John P. Brigham, D.D.S.,

The degree of D.D.S. was conferred on the candidates by I. J. Wetherby, D.D.S., President of the College.

There were enrolled in the college during the term just closed, one hundred and eighty-nine students.

The following are the names of the graduates :

NAME.	RESIDENCE.	NAME.	RESIDENCE.
Mary E Alleyne....	Prince Edward's I.	George Otis Irish	Massachusetts
Joseph L Bellefleur....	Massachusetts	Charles Timothy Kinsman....	Vermont
John Morton Bellets....	Massachusetts	Wm Henry Langdon....	Massachusetts
John Perkins Brigham....	Vermont	Jno Roderick McKinnon..	Nova Scotia
Edward James Cowell..	Massachusetts	Daniel L Manchester ..	Massachusetts
George William Day ..	Massachusetts	Chas Ebenezer M'Intire..	Massachusetts
James William Devlin..	Massachusetts	George Martin Mayers..	Massachusetts
Albert James Duffy ..	New Hampshire	Edwd George Marshman..	Connecticut
John Hancock Eaton ..	Massachusetts	Franklin Leroy Mears..	Massachusetts
Dana Jos Edmonds ...	New Hampshire	Stanley Colebrook Neals..	Nova Scotia
Chas Frederick Erickson..	Connecticut	Etta May Ober	New Hampshire
Edmond Francis Flynn ..	Massachusetts	Samuel Ed O'Donnell ..	Massachusetts
Joseph Michael Gaffey ..	Massachusetts	Danzy Russell Povey....	Massachusetts
Burleigh Childs Gilbert..	Massachusetts	John Francis Riley	Massachusetts
Frank Leslie Gower....	Massachusetts	Frank Byron Sharpe..	New Brunswick
Arthur Wardwell Green..	Massachusetts	George Wakefield Soule.....	Maine
Wm Henry Harrington..	Rhode Island	Walter Eugen Tuttle.....	Maine
Winfield E Hanson	Massachusetts	Jno Andrew L von Betzen..	Nova Scotia
Francis Patrick Harris ..	Massachusetts		

Louisville College of Dentistry.

The annual commencement exercises of the Louisville College of Dentistry was held at Macauley's Theater on the — in connection with the commencement of the Hospital College of Medicine. The exercises of the Dental College were held first.

Prayer was offered by Rev. J. Earnest Thacker.

Professor P. Richard Taylor, M. D., presented the following named persons for the degree of D.D.S. :

Professor Peabody, after a very happy address, conferred the degrees on the candidates.

Prizes were awarded as follows :

S. Marlowe, first honor medal ; Thomas G. Vanhook, second honor medal ; W. A. Fisher, for proficiency in Operative Surgery. Wm. G. Scott was also awarded a medal.

The valedictory address was delivered by Dr. M. J. Dryer.

Wm H Bartholomew, jr
Arthur Burton
Steve O Carter
Joseph Childers
Rutherford D Coffman
Evans Dazey
Charles W Dean
Melvin J Dryer
Eugene S Espy
Wilbur A Fisher
Oliver E Hawn

Galen Owen Loomis
Charles Servoss Jackson
Oscar Jones
Gilbert O Leo
Searcy Marlowe
Harold McCrory
Frank A Meder
Eugene Motley, M.D.
G August Pielemier
Philip J Pollock
Theodore F Roemele

Wm Francis Ross
John Elmore Ruby
Geo P Sadtler
Wm G Scott
Benjamin S Shinness
Joe C Shumaker
Albert H Speer
Thos G Vanhook
Price Wayne Wells
Allie B Wilburn.

National University—Dental Department.

The twelfth annual commencement exercises of the Dental Department of the National University were held, in connection with those of the Medical Department, in Metzert Hall, Washington, D. C., on Thursday evening, June 11, 1896.

The address to the graduating classes was delivered by Professor W. D. Bigelow, Ph.D., and the valedictory address by Edgar W. Watkins, M.D.

The number of matriculates for the session was forty.

The degree of D.D.S. was conferred on the following graduates of the dental class:

NAME.	RESIDENCE.	NAME.	RESIDENCE.
Peter T Kirwan.....	New York	J Vernon Priddy....	Dist. of Columbia
Edmund O Pigeon.....	New York	E E Rankin.....Indiana
Joseph Pospisiel, M.D.....	Wisconsin	A B StinePennsylvania

University of Pennsylvania—Department of Dentistry.

At a public commencement of the University of Pennsylvania, held Thursday, June 11, 1896, at the American Academy of Music, Philadelphia, Pa., the degree of D.D.S. was conferred by Charles C. Harrison, A.M., LL.D., Provost, on the following candidates:

NAME.	RESIDENCE.	NAME.	RESIDENCE.
Francis S Avil	Pennsylvania	Wm E Kiner	Pennsylvania
Fayette H Beard	Pennsylvania	Frederick F Knapp	Pennsylvania
Chas D Bender	Pennsylvania	Allison R Lawshe	New Jersey
John C Benz	New York	Walter W McCarty	Iowa
Charles S Blaker	Pennsylvania	Wm C Marsh	Massachusetts
Carl Bonten	Germany	Sherman M Matheny	Pennsylvania
Alfred E Bull	Pennsylvania	Lucius P Meaker	New York
Guy M Byrkit	Iowa	Ludwig Moestue	Norway
Ernest E Cardwell	England	Edward H Moore	Pennsylvania
J Edward Chace	Florida	Daniel K Musser	Pennsylvania
C A Christine, jr	Pennsylvania	John H O'Hagan	New York
Samuel T Clay	Pennsylvania	J Howard Ozias	Pennsylvania
Thomas J Clemens	Pennsylvania	George C Parry	New York
Charles W Colborn	Pennsylvania	C Gilbert Pearse	England
Albert L Connolly	Pennsylvania	Fred E Pottle	Maine
J Harold Cornell	Pennsylvania	Harry S Pritchett	Minnesota
Nile Crist	Pennsylvania	Charles W Rabb	Pennsylvania
Clyde Decker	New Jersey	Edward D Rank	Pennsylvania
Herbert B Denis	New Jersey	Harry F Reynolds	Pennsylvania
G Henry S Dobbryn	Australia	Charles Ruegg	Switzerland
James A Dowden	New York	Morris I Schamberg	Pennsylvania
John Earley, jr	Pennsylvania	Frank H Schultz	Ohio
Wm S Eisenhart	Pennsylvania	Joseph Schuger	Hungary
Alfred B Ellen	Pennsylvania	Blake A Sears	New York
Morris F Elliott	Pennsylvania	James C Seymour	Nebraska
Malcolm Ellis	Brazil	Herbert H Shapard	Texas
William Farrar	Ohio	Vane G Shiffler	Pennsylvania
Carl Feibusch	Germany	George C Speirs	Connecticut
T Stanley Gamble	Pennsylvania	Nathan P Stauffer	Pennsylvania
V Walter Gilbert	Pennsylvania	P Albert Taeuber	Switzerland
Nicholas J Graeber	Pennsylvania	William D Tracy	Massachusetts
Wm C Graham	Ohio	Otto Venn	Germany
Pearl Z Grey	Ohio	S Albert Walker	Pennsylvania
G Clifton Guest	Pennsylvania	Elbert J Weaver	Wisconsin
John P Headridge	England	W L Webster	New York
Harry B Hickman	Delaware	Charles M Wharton	Delaware
J Ernest Keeler	Pennsylvania	Wm Yeakel, A. B	Pennsylvania

Western Reserve University—Dental Department.

The annual commencement of the Dental Department of Western Reserve University was held in Association Hall, Cleveland, Ohio, May 19, 1896, at 7:30 P. M.

The principal address was given by Dr. J. M. Buckley, D.D., of New York City.

The number of matriculates for the session was fifty-three.

The degrees were conferred by the President, Charles F. Thwing, D.D., upon the graduates, as follows: Wm. G. Ebersole, Frank H. Fagan, Joseph W. George, William O. Haldy, Charles E. Hurd, John W. L. Thomas, John S. Van Meter, all of Ohio.

SELECTIONS.

Odor as a Symptom of Disease.

The chief functions of the nose are: (1) Respiratory; (2) olfaction; (3) resonator to the voice; (4) office of regulator to the aeration of the middle ears.

The normal daily secretion of the nose is about one pint, which comes chiefly from the turbinated bodies, and is used in moistening the air before it reaches the lower respiratory organs. The nasal chambers heat the air for respiration, and aid in modulating and modifying voice sound, giving it proper resonance. Infinitesimal odorous particles dissolved and floating in the air are carried into the nasal fossæ and impinge upon the hairy terminations of the nerve filaments; thence the sensation is conveyed to the olfactory centers. There is but little loss in weight of musk and other strongly odorous substances after they have freely evolved their effluvia for several years. It is the mucous-membrane of the upper half of the nasal fossæ that is capable of appreciating odorous impressions.

Like the other special senses, olfaction may be cultivated by attention and practice. Experts can discriminate qualities of wines, liquors, drugs, etc.

Diseases have their characteristic odors. Persons who have visited many different insane asylums recognize the same familiar odor of the insane. *General paralysis* of the insane affords us a typical example. It is a true cerebral disease, physiologically, pathologically, and psychologically. In it the substance of the convolutions of the brain—the highest in quality and function of any organic product yet known in nature—undergoes a process of degeneration or atrophy, which finally invades

the whole nervous system. The nerve and mind tissue die slowly and progressively. The blood-current carries the waste tissue to the lungs for aeration, and the result is the foul characteristic odor of this disease.

It is not insane asylums alone, but prisons, jails, workhouses, armies in camp, churches, schools, and nearly every household, that have their characteristic odors. It is when the insane, the prisoners, and the soldiers are aggregated in large groups or battalions that their characteristic odor is recognized by our much-neglected "smeller."

Most diseases have characteristic odors, and by the exercise of the sense of smell they could be utilized in differential diagnosis. For example: Favus has a mousey odor; rheumatism has a copious, sour-smelling acid sweat. A person afflicted with pyæmia has a sweet, nauseating breath. The rank, unbearable odor of pus from the middle ear tells the tale of the decay of osseous tissue. In scurvy the odor is putrid; in chronic peritonitis, musky; in syphilis, sweet; in scrofula, like stale beer; in intermittent fever, like fresh-baked brown bread; in fevers, ammoniacal; in hysteria, like violets or pineapple. Measles, diphtheria, typhoid fever, epilepsy, phthisis, etc., have characteristic odors.

The acuteness of the sense of smell is far greater in many of the lower animals (dogs, for example) than in man, and they employ it in guiding them to their food, in warning them of approaching danger, and for other purposes. The sphere of the susceptibility to various odors is more uniform and extended in man. The sense of smell is capable of great cultivation. For example: In the well-known case of James Mitchell, who was deaf and blind from birth, the sense of smell was his principal means of distinguishing persons and perceiving the approach of strangers.

Among many savage tribes the sense of smell is almost as acute as in many of the lower animals. Humboldt says the Peruvian Indians are able, in the middle of the night, to distinguish whether an approaching stranger is a European, American, Indian, or negro.—*Dr. J. H. McCassey, of Dayton, O., in Cincinnati Lancet-Clinic, June 6th.*

NOTICES.

American Dental Association.

Dr. H. J. Burkhart requests us to announce that at the meeting of the American Dental Association at Saratoga, rooms will be furnished free of charge by the proprietors of the Grand Union Hotel, which has been chosen headquarters for Faculties and Examiners' Associations, School of Technics, etc., also rooms for the Section meetings.

National Association of Dental Faculties.

The annual meeting of the National Association of Dental Faculties will be held at Saratoga Springs on Saturday, August 1, 1896, at 10 o'clock, A. M. The Executive Committee will meet on Friday, July 31st, at 10 o'clock, A. M. Those having matters to bring before this committee will do well to bear this meeting in mind. The work of this committee is preparatory to that of the general meeting. All communications requiring the attention of the Executive Committee should be sent to the chairman.

DR. J. TAFT, *Chairman of Executive Committee,*
Berkshire Building, Cincinnati, Ohio.

DR. LOUIS OTTOFY, *Secretary,*
Masonic Temple, Chicago, Illinois.

American Dental Association.

The annual meeting of the American Dental Association will be held at Saratoga Springs, N. Y., July 31st to August 7, 1896. The regular meetings of the American will begin Tuesday, August 4th.

The Grand Union Hotel has been selected as the headquarters, and the meetings will be held there. Ample space for Committee-rooms and Exhibits has been secured. The ball-room and Club-house, connecting with ball-room, have also been placed at our disposal.

The railroad arrangements have not yet been completed, but

we expect to secure the usual fare-and-a-third rate. Tickets good three days before date of meeting, and three days after the close. Dentists should pay full-fare going and take a receipt therefor, as it will be impossible to secure the one-third rate in returning unless you hold such receipt.

J. N. CROUSE, *Chairman Executive Committee.*

American Dental Association.

The American Dental Association will hold its thirty-sixth annual session at Saratoga Springs, N. Y., commencing at 10 o'clock, A. M., on Tuesday, August 4, 1896.

GEO. H. CUSHING, *Recording Secretary.*

The National Association of Dental Examiners.

The twelfth annual session will be held at Saratoga Springs, N. Y., commencing at 10 o'clock A. M. Monday, August 3d, and continuing in session during the proceedings of the American Dental Association.

It is earnestly requested that all State and territorial boards will send delegates.

CHAS. A. MEEKER,
Secretary and Treasurer,
29 Fulton street, Newark, N. J.

Twelfth International Medical Congress.

The Twelfth International Congress of Medicine will be held at Moscow, Russia, August 19-26, 1897.

President, J. F. Klein; Secretary, F. F. Erismann. The fee is \$5.00, which should be sent to Prof. N. Zilatow, treasurer of the Congress. The Congress is composed of medical men only, but persons having a scientific title, are admitted to the sessions of the Congress as extraordinary members. Veterinary Surgeons, Pharmarists and Dentists are classed as extraordinary members. The work of the Congress comprises twelve sections. The ninth section contains surgery, which includes diseases of the larynx, the ear and the teeth.

EDITORIAL.

Annual Meeting of the Indiana State Dental Society.

This body held its regular annual meeting on June 30th and the following two days. The meeting was fairly-well attended, and mainly by the representative members of the State; a goodly addition was made to the membership, which is a hopeful indication. A number of very good papers were read, and well discussed; the discussions were participated in by more than the usual number, relatively, many of the younger members taking part.

The address of the President was of much interest and drew out a very interesting discussion, a large number taking part. The manner of the appointment of Examining Boards was freely considered, and the almost unanimous conclusion was reached that the appointing power should be in the hands of the State Societies, and, at least, the power to nominate; about twice the number to be appointed should be nominated by the State Societies, and from these the Governor might appoint. The general opinion seemed to prevail, however, that there is no necessity for the action of the Governor of the State at all in this matter.

The subject of granting certificates of qualification to non-graduates by Dental Examining Boards was fully discussed, and the general opinion was that it ought not to be done, except in very rare cases. And they would be rare, indeed, if Examining Boards did their duty to the full.

The opinion was freely expressed that no one ought to be licensed to practice dentistry without a qualification equal to that required by our best dental colleges. This is the position taken by quite a number of the Examining Boards in the country, and the idea is becoming more and more prevalent.

The subject of "Replanting and Transplanting Teeth" called out some interesting discussion, and while there was no specially new ideas, some of the old points were so rubbed up as to be quite attractive and interesting.

The subject, "Necrosis," was presented in a very interesting

paper by Dr. N. W. Hiatt. The paper called out a prolonged discussion, and one of more than ordinary interest.

A number of other subjects were presented and discussed, among which were "Antiseptics," "Dental Nomenclature," "The Dentist," "The Benefit of Dental Meetings," etc.

The meeting fully sustained the reputation of the Indiana State Dental Society; and, indeed, it was said by many that so good a meeting had not been held for years. The fact is that nearly every one took some part—and that always makes a good meeting. May the future always show as good meetings as the one just closed.

The Southern Dental Association's Proceedings.

The volume of transactions of the last meeting of this body has just come to hand. It consists of 185 pages, and was published by the S. S. White Dental Manufacturing Company. That is a sufficient guarantee as to the mechanical execution of the work. In looking over it we find it filled with good things which no dentist who wishes to keep abreast of the times can afford to miss; so we say to all such, get a copy and make the good things your own, and if you will do that it will not be necessary to specify further here. It is unfortunate that an index was omitted.

Book Notice.

It will be a matter of interest to the dental profession to learn that R. L. Polk & Co., of Detroit, Mich., have in preparation and will soon issue the second edition of the DENTAL REGISTER for the United States. The last edition—the most complete work of its kind for dentists ever published—came out in 1893. So many members have come into the profession since that time, so many have dropped out, and so many have changed location as to render a new and corrected edition a necessity for all who have occasion to refer to such a work. The former issue is a very full and accurate one up to the time of its publication, and is an earnest of the completeness of the forthcoming volume. Such a work as this is well-nigh a necessity for every dentist who is a member of a dental society, or who has any consider-

able correspondence with his professional brethren. The work is promised at an early date. It will contain the names of about twenty thousand dentists with graduation particulars, list of colleges, laws, and other valuable information relating to the profession. We can most heartily recommend this work to every progressive dentist.

Obituary.

Died, at Riverpoint, R. I., June 9th, DR. C. W. SPALDING, in the eighty-second year of his age.

Dr. Christopher W. Spalding was born March 15th, 1814, in Rhode Island, of Scotch origin. His ancestors were prominent in the Revolutionary War.

Dr. Spalding received a common school education. In 1840 he removed from his native State to New York State. In the same year he began his professional studies and received the degree of Doctor of Dental Surgery in 1851, and that of Doctor of Medicine in 1869.

In 1847-48 Dr. Spalding spent a year in Savannah, Ga. In 1849 he removed from Ithaca, N. Y., to St. Louis where he resided for many years.

He took a leading part in the organization of the Western Dental Society in 1851, and has been prominently identified with the American, several State and city associations, and has been actively engaged in every good work which would tend to elevate the profession of his choice.

He was also an ardent advocate of the homeopathic school of remedies and was very successful in their administrations.

In 1838 Dr. Spalding married Miss Cornelia Anna Erb, also of revolutionary stock. Of this union there is one son, Dr. Jno. H. Spalding, who succeeded to his father's practice in this city.

Dr. Spalding and wife, whose death preceded his over a year and a half, removed to Rhode Island, August, 1890, to spend their declining years in the State of their nativity.

In the death of Dr. Spalding we have lost an earnest and faithful laborer in the healing art, and

Resolved, That a memorial page be set aside in the Society's Transactions and a copy furnished the journals for publication.

Committee of St. Louis Dental Society.

H. J. MCKELLOP,
WM. N. MORRISON,
J. B. NEWBY.

ST. LOUIS, MO., June 19th, 1896.

THE DENTAL REGISTER.

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AUGUST, 1896.

[No. 8.]

COMMUNICATIONS.

Antiseptics.

BY DR. GEO. E. HUNT, INDIANAPOLIS, IND.

Read before the Indiana State Dental Society, Indianapolis, Ind., June 30, 1896.

In dentistry we find that antiseptics have grown steadily in their usefulness as our knowledge of their practicability has increased, until now scarcely a patient leaves our chair without having been subjected to the use of an antiseptic in one form or another.

There are several practical uses of these agents, the importance of which have been largely overlooked by many who are staunch supporters of antiseptics, and it is to these I desire to call your attention.

A mouth-wash is almost, if not quite, as important a component to one's toilet as any tooth powder, yet how seldom do we find such an article even in the possession of our most particular patients. And why is this?

It is either because the patients are ignorant of its value or because they willfully neglect their teeth. In any case the fault is largely our own, and may be ascribed to the fact that we either do not sufficiently urge upon our patients the importance of this valuable prophylactic measure, or because we underrate it ourselves.

The education of our patients is a subject in itself, and an important one, too, but we shall not encroach upon it except in so far as it treats of mouth-washes; of what they should consist,

and when and how used, associated intimately, as it is, with the subject in hand.

You will observe that I have taken the liberty of assuming that we are all agreed upon the therapeutical merits of mouth-washes; hence we will not stop to consider the subject in this light.

In the first place, we should give each and every patient to understand that if he desires to preserve his teeth he should provide himself with a mouth-wash and use it regularly and liberally.

The ideal mouth-wash should possess these essential properties: antiseptic, alkaline, deodorant, somewhat astringent, yet entirely agreeable to the senses of taste and smell. Antiseptic, to arrest fermentation existing through presence of particles of food which remain lodged between and about the teeth; alkaline, in order to neutralize any acidity—the presence of which is so destructive to tooth-structure; deodorant, that any existing odor arising from fermentation, the use of tobacco, etc., may be destroyed or at least modified, thereby rendering the breath inoffensive. The astringent property of a mouth-wash should not exist in a marked degree, just sufficiently to assist in preserving a healthful condition of the gums and mucous membrane.

By combining a pleasant taste and fragrance to the preparation you endow it with properties which assist, perhaps, more than its real prophylactic worth in influencing patients to use it regularly.

Preparations known as antiseptic mouth-washes are numerous, and, like those for the relief of all the ailments to which flesh is heir, there are many which do not meet the requirements for which they are intended, while some have been proven to possess great practical therapeutical value.

Recommend to your patients a preparation, the merits of which you are thoroughly familiar with, or furnish them with a prescription composed of ingredients carefully selected to meet the requirements of the case.

The most essential time to use a mouth-wash is just before retiring. At this time the teeth should be properly cleansed by

the use of the brush, the wash, properly diluted, furnishing the liquid with which the brush is saturated. After the use of the brush the mouth should be thoroughly rinsed with the wash. Patients should understand that there is no such thing as the abuse of a desirable wash, and that the mouth-wash habit, if such an expression is allowable, is a thoroughly desirable one, since cleanliness is next to godliness.

The importance of using preparations which are agreeable to the senses should not be lost sight of. All preparations used about the mouth, whether by injection or as a wash, gargle, or even for local application should possess these qualities. Our aim is to please, and pleasing signifies the creation of a favorable impression. We must save ourselves the embarrassment incident to unfavorable impressions arising from neglect of this small item.

The accomplishment of the desired end is within the grasp of all who will give it a little study. The addition of one of the balsamic agents to an otherwise offensive preparation will be accompanied with satisfaction to both patient and practitioner.

We should have on hand, for general use, an antiseptic which by different degrees of dilution will fulfill the requirements such as the term "general use" signifies, though we should in no wise look upon it as a "cure-all," since so many cases require special attention.

THE DISINFECTION OF INSTRUMENTS.

Many of us seem to feel that we have fulfilled all that the laws of hygiene and prophylaxis require when we see that our instruments are carefully wiped with a clean cloth or napkin, or perhaps dipped into water and then wiped dry. This may, and perhaps does, remove all visible stains and dirt, but we must remember that in all probability many germs remain upon their surfaces. Certainly the vast majority of these germs or micro-organisms are harmless, but on the other hand, those same instruments which have been replaced in your cabinet, supposedly clean and ready for use, may be infested with micro-organisms of the most infectious character. What an unpardonable crime it would be to affect a poor, unsuspecting patient with syphilis, for

instance, through neglect of this sort when so convenient and sure a safeguard is at hand.

This safeguard should consist of a strong antiseptic solution, the active ingredients of which will not deteriorate by long standing. Bichloride of mercury corrodes steel, and therefore is not available for this purpose.

Here is another use for your general antiseptic previously referred to. Have at hand a vessel (a finger bowl is entirely suitable) containing your solution, and at the conclusion of each operation, irrespective of the social standing or general character of the preceding or succeeding patient, see that each instrument used is carefully immersed in this solution.

Closely allied to this prophylactic measure is the attention given our hands before introducing them into a patient's mouth. Considering that our hands are almost constantly within observation, it is apparent that it behooves us to be particular regarding their appearance. While it might not be especially observed that they are clean, it certainly would be noticed that they are *not*, if such be the case. In reality we have not done our duty entirely when we present ourselves with clean hands; they, too, should be disinfected.

Previous to beginning an operation, and preferably within view of the patient, the hands should be thoroughly washed with soap and water. A nail brush should be freely used in this connection. After all signs of stain and dirt have been removed, the hands should be carefully dried, and following this immersed in an antiseptic solution. To this add the cleaning of the nails and the use of a spray of toilet water from your atomizer, and you may go before your patient feeling that you have protected him (and yourself), against the danger of infection according to the most approved methods. It may be argued that the end does not justify the means, for to be sure the pursuance of this plan means an apparently unnecessary expenditure of time in many instances, but one needs only to draw a picture in one's imagination of a ruined and sacrificed life resulting from his neglect in disinfecting instruments or hands, to feel that the time consumed is fully compensated for by an amount of personal satis-

faction derived from the knowledge that such a misfortune had not come to him on this account.

If we aspire to be "up to date" in our profession we must avail ourselves of "up to date" methods, and this is one of them. The surgeon of to-day spares no pains in fulfilling every detail which comes within the category of antiseptic precaution. So we, as dental surgeons, must practice in the same channel if we are specialists in medicine.

The future of antiseptics can hardly be over-estimated since we have come into a full knowledge of their true value. Their prophylactic worth is not sufficiently understood by the public generally, and it remains for us to distribute such knowledge upon all sides. By so doing, and not until then, do we fulfill our duty to humanity.

Physiological Antagonism.

BY DR. GEO. E. JOHNSON, FORT WAYNE, IND.

Read before the Indiana Dental Society, June 30, 1896.

By "Physiological Antagonism" in the science of medicine is meant a balance of opposed actions on particular organs or tissues.

I imagine I hear you say "he is not a little sugar-pill man or a benedict of Hahnemann" although I do acknowledge that some diseases are cured by contraries and some by similars, but similars are contraries so far as they remove the causes of disease or abnormal function, so the law of antagonism still holds sway.

"*Similia similibus curantur*" operates in only a limited number of diseases, so we cannot rely on treating or duplicating symptoms for restoring lost equilibrium, or pathological physiology.

I cannot in the time allotted to a paper do more than treat the physical basis of the principle of antagonism and illustrate the mode of action and application of some of the remedies used in dental and oral diseases. The basis principle of an opposition of action finds its strongest support in the mechanism of func-

tions. In the brain, medulla oblongata and cord are centers which control every function of the physical body, whether it be voluntary or involuntary.

In the great nervous system, viz.: the sensory, vaso-motor and the great sympathetic, we have a beautiful illustration of the division and union of labor, each having its office to perform, yet bound together in the bonds of sympathy making one grand system, working together for one high aim, the protection and preservation of the body of which they form a part. Opposing forces to maintain the equilibrium is demonstrated in the spasm-center of Northnagel, which is a center of extreme reflex sensibility situated in the medulla oblongata, and just above it, Setchenow's inhibitory center, with its correcting or restraining influence over reflex movements. If there were no antagonist or governor for the spasm-center, think of the very unpleasant reflex effects from every trifling peripheral irritation, but each is a force and when correctly balanced the nervous system sustains no unpleasant shock or results such as reflex neuralgia, lockjaw, or tetanic convulsions. We have an admirable illustration of opposing forces in the cardiac and respiratory mechanism producing order and rhythm. The movements of the large vessels are regulated by the largest of the cranial nerves, the pneumogastric (or parvagus) which in turn has its center in the medulla, and supplies the voice and respiration with motor and sensory filaments and the pharynx, œsophagus, stomach and heart with motor, and as the heart is also supplied from the recurrent laryngeal and great cardiac plexus of the sympathetic, you will readily observe the opposition of forces, and how the vascular tonus is maintained by the dilator and constrictor actions.

Perhaps the best illustration of opposing forces may be shown in the application of cold and heat in the following experiment: Lay the heart of a turtle or frog on a metallic plate, and if maintained at the normal temperature it will continue to act rhythmically for some time, but upon cooling the plate with ice you may slow or arrest its action; then, on applying heat it begins to pulsate again and still more rapidly as the heat is increased within proper limits. Another experiment: Drop a

small quantity of serum, containing a slight trace of muscarine and the heart will be arrested diastole, but upon applying a 0.2 of atropia the pulsations begin again.

Reciprocity of action in the nervous mechanism regulates the blood pressure in the vascular system, and thus prevents fatal results. Should the arterioles of the body dilate from local or constitutional cause the heart increases its action automatically; on the other hand, should the arterioles contract or take on a spasm the heart's action is as suddenly lessened, thus maintaining the equilibrium and preventing breach or rupture of the vascular system.

The same reciprocity of action regulates the respiratory movements and many other functions we will not discuss in this paper as this will suffice to demonstrate the basis principle of opposing forces in their beneficence, and I shall now apply the principle in the treatment of inflammation, counter-irritation, tetanus, facial paralysis, hemorrhage, neuralgia and anæsthetics or anodynes.

Taking it for granted you understand the pathology of the different stages of inflammation I shall treat it from the science of physiological therapeutics. Either local or constitutional remedies, or both, should be applied or administered to antagonize the dilatation (or paresis) of the walls of the arteries and arterioles in the hyperæmic stage, but this treatment in stasis or exudation would be a very serious mistake. Aconite and iodine as local, and quinia and morphia as constitutional remedies, will raise the tonus of the arterioles, check the amoebiform movements of the leucocytes and the outward diffusion of albumen, fibrine and salts, but chloral hydrate is especially useful prior to the stage of complete stasis, as it diminishes the heat, dissolves exudations, and has a hypnotic action to quiet restlessness.

Local applications of heat at first produces hyperæmia by the dilatation of the arterioles (paresis of the sympathetic filaments), but continued application of heat stimulates the vaso-motor to increased nutrition and thereby removes the difficulty if the heat does not greatly exceed the normal temperature of the body. While, on the other hand, cold first produces contraction or

spasm of the vaso-motor filaments (anæmia) and if remitted will result in hyperæmia, and if extreme cold is long continued will result in stasis and finally gangrene by impoverishing the parts.

Counter-irritation circumscribes itself by vesication, induces an afflux of blood, stimulates the filaments of the vaso-motor by paralyzing the end filaments of the sympathetic. Tetanic convulsions proceed from peripheral irritation, a wound or a concussion, and you ask an explanation. This is an abnormal excitability or irritability of Nothnagal's spasm-center due to the functional inactivity of the inhibitory center of Setohnow.

What are the symptoms and how antagonized? A sudden deathly pallor which means contraction or spasm of the arterioles of the brain, next a partial or complete paresis of the pneumogastric. What is the result? Suspension of respiration, and next cyanosis, as a result of suspension of respiration, and lastly paresis of the heart.

We now understand the exact pathological condition along the line from cause to effect. How antagonize? Relieve the spasm at the starting point and the symptoms will quickly disappear. Inhalation of nitrate of amyl, administration of chloral, bromide of potassium, physostigma and gelsemium are indicated, the same remedies being indicated in cases of poisoning by strychnia, as this produces the same functional disturbance.

The reverse, viz.: Facial paralysis, strychnia and electricity are indicated. Who in this age of medical science need to resort to the medley of ancient astringents, brown paper, spider webs or pow wow, for hemorrhage or hemorrhagic diathesis? Relaxation of the vessel walls and arterioles, and consequently acceleration of the heart's action are the conditions to antagonize, and the best remedies are ergot, digitalis, bromide of potassium, veratrum viride, etc., with tincture of chloride of iron.

We now come to the most interesting part of my paper. To very many neuralgias and anæsthetics, which I shall treat as pain and anodynes. Dr. Gross said: "If America had contributed nothing more to the stock of human happiness than anæsthetics the world would owe her an everlasting debt of gratitude."

But to analyze pain, what is it? how prevent it? or how antagonize it? Pain is composed of several elements and degrees of intensity, and is the result of real or imaginary injury.

I shall not treat from a psychological point of view but suffice it to say it is a consciousness or realization of an injury, real or imaginary, reflected to and through the spasm-center of Nothnagel exalting or exaggerating this center to extreme sensibility. Hence these two great forces of the animal economy, inhibition and spasm are thrown off their equilibrium by overpowering the inhibitory center, therefore, it is apparent that with the power of exciting inhibition, or suspending reflex action will prevent or relieve pain, or restore lost equilibrium, and this may be accomplished by two methods, local and general anæsthesia.

Any remedy which applied locally paralyses the end filaments of the sensory, or destroys the transmission of sensation to the center, prevents pain. This action we have in aconite, chloral, cannabis India, cocaine and many other drugs varying in effectiveness.

Any remedy, or combination of remedies, which suspends reflex sensibility of the center without impairing other functions, is the agent we have been searching many years to find.

**Address of Dr. W. W. Shryock, President of the Indiana
State Dental Association, at Indianapolis,
June 30, 1896.**

My Esteemed Fellows of the Indiana Dental Association :

After extending a most cordial greeting; allow me to express my profound appreciation of the honor conferred in my election to the most honorable office within your gift, and ask that the generous favor which prompted it may continue in my behalf throughout our deliberations.

We meet to-day to plant the mile-post that marks our thirty-eighth birthday. On December 28, 1858, a few unselfish and noble spirits—men from the chief towns in the State—met at Indianapolis and perfected an organization which is a power and pride, commanding our mutual gratitude and congratulations.

Like all movements destined to great accomplishments, it had an humble beginning. Those who took this important initiatory step deserve a grateful remembrance, and their names can not be too often brought to our view. They were: Drs. John F. Johnson, T. H. Nichols, P. G. C. Hunt, G. C. North, A. M. Moore, J. P. Ulery, John Hood, S. B. Smith, H. R. Hurd, George Lupton, H. Salterect, A. W. French, S. B. Harland, W. R. Webster and D. C. Dills.

Few survive to receive our benediction, but their works live after them. Since our last meeting another one from this honored roll has been taken from us. It is a just tribute to say that Dr. P. G. C. Hunt, for fifty years, stood without a peer in his profession in Indiana. In acknowledgment of which this Association, and the profession at large, will ever be found ready to honor and revere his memory.

In our commendable eagerness to add to our membership, in a regretful way we often ask: 'Why are so few, compared to the many, seeking the benefits and lending their influence to our organized efforts?' It is a demonstrated fact, and the time has come when we must recognize an immutable natural law, which is operating for our greatest good in withholding from our Association an unwieldy and diversely disposed assemblage. It is error to assume that the members now in attendance at this Association, as in all previous ones, are not the acknowledged and willingly-accepted representatives of all the dentists of Indiana, and morally delegated to act in their interests with a principle more binding than if elected by ballot.

The truth of this position was demonstrated at the time of securing the State Dental Law. At that time the State contained five hundred dentists; of this number, not to exceed fifty expressed a desire for its passage, and less than half that number took any active part in advocating it.

Where were the silent four hundred and fifty? They were eloquent in verifying the adage that, "Silence gives consent." To be sure some antagonistic muttering and grumbling, the sweet prerogative of natural-born critics on all questions of progress, were heard from ambush, but moral cowardice restrained

any open obstruction to a measure destined to give the greatest good to the largest number—a factor in the great law of human progress and civilization.

An enumeration of the membership of the American Dental Association shows only two hundred and seventeen. Embraced in this are the National Association of Dental Faculties, and the National Board of Dental Examiners, This Association dominates the destiny of the profession in America. It is, so to speak, a sovereign power which rules 25,000 subjects.

It can not be an arbitrary power, hence it must be by the consent of the governed. Assuming that this position is not a mere hypothesis, but conclusively evident, let us waste no more time in vain regret or depressing reflection, but accept the fact that we are Heaven-ordained to represent the silent members of our profession in Indiana; that they fully acquiesce, their consent being affirmed by their absence, in accepting us as the elect.

This ground does not in the least admit of any laxity in vigilance or diligence, but rather increases our ardor and activity in winning additional recruits to maintain their chosen quota of representation. This commission imposes upon us greater responsibilities and duties. Let us now enter upon them determined to discharge them conscientiously in accordance with our highest moral conception—"With charity for all and malice toward none."

Necrosis.

BY DR. N. W. HIATT, MARION, IND.

Read before the Indiana State Dental Society, Indianapolis, Ind., June 30, 1896.

Necrosis of bone, and caries of bone, while seemingly the same, differ slightly in action. Caries of bone might be designated as the molecular disintegration of bone, or the death of an osseous structure in particles, which, as a destructive process, resembles the ulcerative action peculiar to the soft tissue, and is a slow process; while necrosis is a more rapid process of bone-

death which destroys considerable portions of osseous material at a time, and is analogous to sloughing of the soft tissues.

In taking up the study of necrosis, we are first impressed by the fact that necrosis does not, in itself, constitute a disease, but is the result of previous inflammatory disease of the bone.

According to Stanley, in his treatise on "Diseases of the Bones" and the order of frequency in which necrosis occurs in different bones of the body, we find the lower jaw more susceptible than the upper, the upper jaw being one of the last to be affected. An examination as to the difference in structure of the two jaws shows the lower to be very compact, and the upper very cancellous. The frequency of necrosis in lower jaw as compared with the upper may be attributed to the compact nature of the bone, and the inability of the inflammatory products to find their way to the surface; while just the opposite may be said of the upper jaw, which is very cancellous, and as a result the inflammatory products find their way to the surface without much resistance from the thin layers of bone covering the roots of the teeth.

The injurious effect of tension is thus lessened, and in a great many cases entirely prevented. Heath tells us that "the blood supply has an important part to play as to the difference of the susceptibility of the two jaws to be attacked by necrosis."

The upper jaw is supplied by numerous branches of the internal maxillary artery, which inosculates freely from side to side, and in this way nature is enabled to carry away the inflammatory product and resist the poisonous effects.

There seems to be a difference of opinion as to the blood-supply of the lower jaw. By some writers it is claimed that the arteries supplying the lower jaw do not anastomose, a condition which, if it does not exist—and I am inclined to doubt it—would make quite a difference as compared with the upper jaw, where they do anastomose. I have here some specimens of bone removed, and as they are passed around, I will explain the case to you as best I can.

Case No. 1: Was of the right superior maxillary bone, and was accompanied with abscess of antrum. When patient first

called on me he complained of pain in first molar tooth. Face was slightly swollen; a large cavity on mesial approximate surface; cavity was opened and pulp found dead. Caustic pyrozone was used to clean roots and patient dismissed. The next day I was asked to call at the house, as the patient's face was so swollen that he could not come out. On examining the mouth I found what I thought to be an ordinary abscess resulting from the molar tooth I had treated, yet there was no tenderness in the tooth, which was still very firm. I opened abscess, and washed in the usual way. On the next day I called again and found not only the abscess-pockets refilled with pus, but the mucous membrane of the palate, as far as the mesial line, was swollen down even with the grinding surfaces of the teeth. Both places opened and cleansed and the patient told to call at the office on the following morning, which he did, but with no improvement. Teeth were getting slightly loose, but not tender to pressure. No discharge of pus into roots of molar, so they were filled and abscess cleansed again, and patient told to come again the next morning. At this visit there was quite a little pain in the first bicuspid tooth, the second bicuspid being gone. Tooth was so loose that we removed it immediately and found quite a discharge from the antrum. On examination of the tooth extracted, I found under a cement filling a dressing of iodoform. Nerve had been destroyed and this dressing put in, but patient had never been back to have it finished. This he told me after I discovered the dressing. The opening into the antrum was enlarged and caustic pyrozone injected into it. There was no pain as a result of it, but pyrozone came out of his nose, and, seemingly, all over his mouth. This treatment was kept up three days longer, but the teeth were getting looser all the time, and had I taken a pen and ink I am sure I couldn't have drawn a line showing more plainly the line of demarcation than, shown between the two superior maxillary bones and the mucous membrane covering them. The right central was so loose that extracting it with the fingers would have been an easy matter, while the left one was immovable. Swelling had almost disappeared, but pus was coming from around all the teeth on the right side. I removed them and found the bone, in

places, had separated, and was only hanging in the gum tissue. The bone was removed to the floor of the antrum ; part of that, however, we were able to save. The discharge of pus stopped immediately, and the patient was entirely well within ten days or two weeks. There was, of course, some deformity which might be overcome to a certain extent with a partial denture.

Case No. 2: Patient had a left inferior first molar treated, nerves taken out and filled, something over a year ago. Was at Atlanta, Georgia, where work was done. Tooth ulcerated and abscess formed, and opened shortly afterward, and this condition had existed ever since. The fact that there was constant drainage, there was no pain, but tooth was loose. The patient came to me because the left side of his face, and left side of lower lip was continually numb, and, being a cornet-player, bothered him quite a little. Upon examination I found the inferior dental nerve entirely gone. The section of bone taken out extended from first the bicuspid to the third molar, and about a quarter of an inch below the inferior dental canal. The specimen I show you is the only large piece removed, the remainder was scraped and burred away. The molar tooth that had been treated, I am sorry to say, was kept by the patient. When I decided to operate on his jaw, he promised to stay under my care a week, but when the engagement of his company was over two days later, he was getting along so nicely he decided to go away with them, and promised to let me hear from him. He wrote me from over in Illinois that he was all right as far as he knew ; that his jaw had healed nicely, and had no pain at all.

Within the last six months I have had two cases of necrosis so similar to the ones just mentioned that it will not be necessary to mention them.

Since I have been a member of this Association I don't remember of hearing anything said on this subject, and if the discussion will bring out anything to enlighten me, that I may be better able to take care of it when necessary, I shall feel that I am surely repaid for my trouble.

What Should the Dentist Do to Prevent Decay of the Teeth?

BY N. S. HOFF, D.D.S.

The phrase "My patient" is so often encountered in conversation with professional men that the question is raised as to the actual relations of doctor and patient. There are, undoubtedly, many good reasons why his patrons and the professional man establish closer and more interdependent relationships than obtain elsewhere in the business world.

That this is a fact is evident when we recall the instances in which patients use the term "My dentist" probably more frequently than those where the dentist claims the patient.

What claims can we make to the confidence and allegiance of patients?

It will serve the purpose of our thought to briefly enumerate some of the more evident of these claims and to dwell more particularly upon such as seem to us to contain the elements which should inspire our patrons with the greatest confidence and not only merit but oblige their continued patronage.

The first and perhaps the most apparent reason is the efforts made to induce patients to make the first approach. This involves the whole question of location of one's business place and its surroundings, convenience and accessibility, attractive furnishings, ample appliances and facilities, at least an agreeable, and if possible an attractive personality combined with a thorough professional education and a happy and judicious mingling with society, business and professional people and other legitimate means for extending one's acquaintance. All of which may and should be done in an honorable and dignified way.

These things are important elements in the establishment of a dental practice and should not be neglected, but the most conclusive and commendable element is that which involves a spirit and determination to make conscientious endeavors to circumvent the ravages of disease, and in proportion as our efforts in that direction not only of repairing damages, but of warding off

disease, have been successful, shall we have the moral right to expect or claim the continued patronage of those who may or would be inclined to seek our services.

This introduces the question which serves as the title of this paper, "What Should the Dentist Do to Prevent Decay of the Teeth?"

As a general answer, I should say that we should do whatever may be done to secure a faultless development and make persistent and intelligent efforts to check and ward off all destructive influences.

To secure a perfect development we will necessarily begin efforts which will look to the end, at a very early time, in the development of the teeth.

It will be a wise foresight, perhaps, to advise the mother of the importance of giving attention to her own health and well-being in order that the teeth of the offspring may be of the best character. Just how much can be done here it is difficult to say, for many practical difficulties stand in the way of offering advice of this kind. The dentist is not often, or at least always, acquainted with the circumstances which would render it possible or practicable to offer advice of this kind; or there may stand between him and his patients social or civil reserves which prevent a free discussion of such matters with them. I am, however, inclined to think that the strongest reason we can think of why more advice of this kind is not given our patients is that we are not prepared to give clear and adequate advice on this subject. While I realize that this is too true, I can not feel that there can be any great censure attached, for the reason that this subject has never been carefully worked out by any one from a dental standpoint. It is true that there has been a great deal of superficial and somewhat desultory writing in our journal about the importance of this matter and even advisory treatment of a general character.

But the field of physiological chemistry is just opening up, and until some work along this line is done in a purely scientific way, we shall still go on groping in the darkness of empiricism.

Our teachers and text-books tell us to give expectant moth-

ers foods containing the tooth elements, phosphate and carbonate of lime. This sounds well and sometimes may be good advice, but there are recorded cases of where this advice has produced very serious complications, resulting in excessive bony development and difficult parturition, to say nothing of the impoverished nervous and muscular tissues.

The fact is we need the counsel of the expert physician in these conditions.

Dentists, from the very nature of their work and practice, can not be expected to make accurate diagnoses, nor to intelligently prescribe the proper quantity or quality of food for the great variety of physical conditions of the women of our day, but it is my opinion that we should not altogether ignore this matter, but that we should make ourselves as familiar with its general bearing as possible and advise with the family physicians of our patients and gather data that shall help to establish more definite and scientific methods of meeting this problem than any we now possess.

The dentist can render invaluable aid to the physician in this matter as he can determine results with a considerable degree of accuracy.

He would at least be able to determine the comparative value of different treatments in the results secured and be able to fairly compare or value these results.

Secondly, it seems to me that it is high time more notice was given to the eruption of the teeth in a regular order and harmonious position.

It is not often that the deciduous teeth emerge into irregular positions, but occasionally they do, and I need not tell you, gentlemen, that irregular or mal-positioned teeth constitute a menace to their integrity.

It is, perhaps, of less consequence to these teeth because, they are short-lived, but it is of considerable importance to the second or permanent set of teeth that the primary teeth should occupy their definite places and fulfill their mission or work, until such time as the permanent teeth are ready to supplant them. The second or permanent set should be brought into per-

fect alignment or occlusion at as early a date as possible after they emerge from the gum-tissue. The importance of this is not so fully entertained by the profession as it should be, probably for the reason that our authorities on the question of the proper time to do regulating have not been unanimous in their opinions.

One claims that as soon as it becomes evident that a tooth is intent on, or is liable, to assume a wrong position, that it should be brought by force into its proper place, taking little or no account of the completion of development of the tooth-tissues.

The other school maintains that the regulating should be postponed until the teeth which are to form the bases and keys to the arch are not only erupted but are fully developed and have assumed a definite position.

I will not weary you with the arguments advanced nor with the good illustrations to be had on both sides. In fact, the arguments are so convincing that most of us are completely "at sea" as to the best and proper time to do this work. Is this one of the questions that must remain undecided, or can we get any more decisive information by a closer and more accurate investigation? Personally, I am not a advocate of either method, but come to a decision in view of the conditions which individual cases present. I am fully convinced that changing the position of the teeth in the jaw is relatively easier of accomplishment the earlier it is undertaken, and if carefully done will be accomplished without injury.

There is this to be said in favor of early regulating : that the teeth will be better developed and consequently put into the best condition to resist the action of corrosive agents and to admit of repair when disease shall attack them, and they will be in proper position to do their part in the general nutrition of the body, and for their own good.

We can not, with these points in mind, fail to take into account the conservative value of perfectly-developed teeth and their normal position in the dental arches.

The third element in our somewhat complex review of this question will be that which takes into account the value of cleanliness, or prevention of the development of destructive agents in

the mouth. A well-developed tooth-tissue will resist the attacks for a long time of the vicious influences generated or to be found in many mouths, a regular and complete denture will, to a certain extent, make it impracticable for these disease influences to generate in sufficient quantity to accomplish any considerable amount of injury. Yet, in spite of these happy influences, sooner or later, conditions will be obtained in the mouth which will call for outside, or artificial help, to overcome the evil agencies. A demand will arise for the tooth-brush, the pick, the ligature and other mechanical means for removing from the interdental spaces, fissures and surfaces of the teeth extraneous and disease-breeding deposits.

These will also need to be supplemented with various detergent and disinfectant tooth-powders, soaps and washes. It will suffice here for me to say that there is no question as to the value of the regular and intelligent use of these agents to prevent the active destruction of the teeth by the usual decay-producing agents.

Shall I take your time to detail the character of these prophylactic measures? I shall not presume to do so in detail, and yet, I would suggest that the tooth-brush should always be fitted to the mouth by the dentist rather than by the druggist or patient. This is as proper a function of the dentist as is the fitting of spectacles by the oculist. Prescribing a tooth-powder or mouth-wash should, rarely if ever, be left to the office boy or the druggist.

Every mouth does not require a radical detergent powder any more than every mouth requires a powerful disinfectant mouth-wash; each of these can do incalculable injury if used when not indicated. Irregular teeth can not be properly cleaned by a rigid, flat-faced tooth-brush, and a gritty or insoluble tooth-powder used with such a brush will waste beyond repair the soft tissues and the tooth-substance as well in all exposed or prominent places. Neither should these gritty powders or alkaline pastes or soaps be used on irritable and sensitive gum-tissues of low vitality because of impaired nutrition; rather mild stimulating and slightly astringent antiseptic washes or soluble powders should be preferred.

In every case the prevailing conditions should receive careful consideration, and should there be any tendency to degeneration nothing aggravating should be allowed, but corrective measures should be devised each for the peculiar conditions present.

It is not always easy to diagnose local conditions, as many systemic disorders manifest themselves in the mucous membranes of the mouth; but in most cases these local manifestations of very obscure disorders will at least tolerate a mild antiseptic treatment when they would rebel at the application of excessive irritants. Cleansing appliances and applications should also be made agreeable to the patient. Awkward or difficult appliances to use will not be effective, or at least will not be effectively used.

Nauseating powders or washes will not be used by children or delicate people, who generally need such things most. All mouth-washes and detergent powders, soaps or pastes should be made agreeable to the palate, so that patients will rather incline to make good and regular use of them.

Avoid bitter, hot or astringent excesses of all kinds, and if they are necessarily indicated correct the unpleasant taste or effect with sugar, to sweeten and overcome bitter elements, and bland oils or gums to emulsify the excessive irritants and so prevent excessive irritation and give them a more continuous action.

A BASIS FOR TOOTH-POWDER.

Take of English precipitated chalk.....	10 drachms
“ “ finely-powdered cuttle-fish bone.....	6 “
“ “ “ “ white sugar	3 “
“ “ “ “ white castile soap.....	1 “

Mix, color with carmine, flavor with rose or wintergreen oil, and sift through a very fine sieve. This powder will serve all practical purposes where no medical effects are desired. If an astringent effect is wanted add 15 drops of tincture of myrrh; if a stimulant and astringent effect is desired add 20 drops of tincture of myrrh and capsicum to the original formula; if an antiseptic powder is wanted add to the formula 30 drops of Black's 1, 2, 3 remedy. It may be made into a paste by mixing with it

glycerine, or honey and listerine. It can be incorporated with softened castile soap and pressed into hard cakes. It may be mixed with mucilage or gum arabic and pressed into tablets. If the soap is objectionable use in place of it powdered soap-tree bark; if the sugar is objectionable use saccharin, 15 grains. If the cuttle-fish bone is too insoluble or gritty substitute carbonate of magnesium. And in various ways the powder may be modified or changed to conform to the requirements of special cases.

A BASIS FOR A TOOTH-WASH.

Take of saccharin.....10 grains
 “ “ bicarbonate of soda.....10 “
 “ “ spirit10 drachms

Warm gently to facilitate solution and combination and add 10 grains of salicylic acid. For use put a teaspoonful in a half a glass of water; this makes an alkaline, antiseptic and stimulant mouth-wash. It may be made astringent and stimulant by adding tincture of myrrh and capsicum.

It may be made more antiseptic by adding listerine. It may be more agreeable to use if one drachm of the fluid extract of soap bark be added.

In addition to the ordinary prophylactic precautions just indicated, some care is needed to overcome the incidental effects of corrosive drugs administered by the physician in the treatment of systemic conditions.

The administration of all acid preparations by the mouth should be accompanied with such precautions as may be indicated to avoid having the acid come into contact with the teeth, and in addition, a vigorous brushing of the teeth with an alkaline wash will be advisable, and the packing between the teeth of some alkaline preparation that is not readily dissolved will be very helpful; finely-prepared or precipitated chalk has been much used for this purpose; solutions of bicarbonate of soda, as a fluid wash, will meet most cases. The administration of soluble salts, such as aluminum, sodium and calcium, liberate their acids in a very active form in the mouth, and probably produce more extensive corrosive effects than free acids, because of the fact

that their action is not suspected. It is a mistake to think that the salts of alkaline substances when decomposed in the mouth will themselves correct the resultant acids.

The administration of iron preparations, particularly the tincture of the chlorid, is liable to produce corrosion of the teeth by the free hydrochloric acid in the preparation. This may be counteracted by the liberal use of water and alkalies. A solution of the oxide of magnesia is much used for this purpose, as it is not readily soluble, and will keep the mouth alkaline or neutral for a considerable period.

Another important element in the preservation of the teeth is the conservation of good bodily health. Everything that will tend to make a vigorous and healthy constitution will make toward the preservation of the teeth. A strongly-fortified body means well-nourished teeth, healthy secretions from the oral tissues, good digestion and general condition of the fluids of the body which will overcome fermentation and putrefactive tendencies. This means that the various organs and tissues of the body shall be given proper exercise, and none, nor any of them, overworked.

The lungs should have plenty of pure air to keep them active. The digestive organs should have plenty of good, digestible food, of such variety as to give each organ a proportionate amount of work to do, and the food should not be excessive either for all the organs nor for any particular set. It should be eaten at suitable and regular intervals, so as to give periods of rest and work or activity. The use of stimulants, such as bitters, tonics, spices, etc., for healthy organs are not required and their use, to hurry up the action of fatigued or diseased organs, is questionable, so much so that they should never be used merely to gratify the taste, but always on the advice of a competent physician. On the same principle the use of narcotics to relieve the distress from excessive eating is equally to be condemned. All these too common practices tend to clog the body emunctories and prevent their normal functions to such an extent that the soft tissues of the body become impregnated with waste and poisonous materials, which set up disease of these tissues to such an extent as to

accomplish their destruction. In the mouth we find notable examples in tumid gums, ulcerated mucous membranes, calcic deposits, and the worst of all oral diseases, pyorrhœa alveolaris. This subject is too extensive for me to more than touch upon here, and I wish only to suggest enough to make apparent the necessity for the enforcement of good hygienic principles on behalf of the dental tissues, in the way of good and pure food in proper quantities, an abundance of pure air and ample, warm and protecting clothing.

Now, if all these things are important to the minority of people who are healthy, what shall we say of the great majority who are not always in the enjoyment of perfect health, and many of them never see a well day?

Of course our line of argument will permit of no other suggestion than that they shall be restored to health, or at least, a practicable measure of it. Shall this be the work of the dentist, or must he stand by and do what he can to rescue the decaying teeth, disregarding all efforts to better the systemic conditions? We should say no; the dentist should, of course, not attempt the practice of general medicine, but should advise with the patient and his physician and see that all that could be, was done, to protect his efforts at repair.

And, having done this, and urged its importance on both his patient and the physician, he is ready to take up the last, and to some extent, the largest and most important factor in our consideration of this subject.

This is such a large subject that I shall only allude to it in concluding this paper and in a general way. At this period in dental practice no one will question the statement that repairing the ravages of disease of the teeth should always be undertaken, and pushed to the limits of one's abilities and the circumstances which will ever modify the particular forms of treatment. We are not yet able to dogmatize as to the kinds of material or manner of using this material, nor even as to the time to use it. One general rule, I think, we may adopt as a safe starting point, and that is, as soon as disease attacks the tooth it should receive some kind of treatment. The child's teeth, if they decay pre-

maturely; must be filled, cauterized, eroded or polished, or in any way treated so as to preserve them until such time as they shall have fulfilled their full function. Incipient decay of the second or permanent teeth should have equally prompt and decided attention. The best material and most perfect adaptation is none too high a service. In fact, nothing short of a thoroughly adequate and reliable treatment will suffice. In some countries the decay of the teeth is looked upon as a universal disease which is harmless and does not jeopardize the general health, but must run its course, and when the teeth are all gone artificial ones can be had to take their places. Happily, this idea does not prevail in our country, but the dentist is expected to preserve every tooth even to the end of life. It is not too much to predict this as a general result of the wonderful advances we are making in our knowledge of treatment, and the more intelligent care which both patients and dentists are now giving, not only to the development of strong tooth-tissues, but also to their preservation by early and persistent treatment, looking to the correction of disease and the prevention of its recurring attacks. It seems to me that the important work of the dentist of to-day lies very much along the line of early and thorough operations upon the teeth. Early, to prevent the least possible loss of valuable tooth-structure; thorough, that needless repetition may be avoided, for every time a tooth is filled it is correspondingly weakened structurally and, to some extent, functionally. As a theoretical ambition or aim, which can not, however, always be made practical, I would suggest a maxim something like this: "Never temporize, but make each and every filling for life."

The Absorption of the Roots of the Temporary Teeth.

BY ALLISON WILLIAM HAIDLE, D.D.S.

From the earliest period down to the present time many theories have been advanced regarding the phenomenon of the absorption of the roots of the temporary teeth; theories as curious and as varied as may well be imagined, consisting chiefly,

however, of mere conjecture, and indeed, at the present time, we can not state positively the whole process in detail.

Many of the ancients supposed that the temporary teeth had no roots. Others thought that the crowns were shed from their roots just as the antlers were shed from the head of a stag, and that the remaining root then gave birth to the permanent tooth.

“Fouchard and Bourdet attributed their removal to the action of a corrosive fluid. Bunon was of the opinion that they were worn away by the rising tooth. Lecluse thought that when the process of their removal began, the blood-vessels ceased to supply nourishing juices, and they were broken up by a species of maceration, while Jordan believed it was both by corrosion and abrasion. Laforge, observing a fungiform or carneous substance behind the root of the temporary tooth (which had, in fact, been noticed by Bourdet, and supposed by him to exude a fluid possessed of solvent qualities), gave it the name of absorbing apparel, and assigned to it the function of removing the root of the temporary tooth. Delabare, who treated the subject at greater length, and apparently investigated it more closely, adopted the views of Laforge.”

Harris says the more he has examined the subject the more fully he “has become convinced that it is the result of the action of this fleshy tubercle (the carneous body of Laforge) upon them; and while its formation seems to be the result of the contraction of the dental sac and its appendages for the purpose of effecting the eruption of the permanent tooth, it is especially charged with the removal of everything that would obstruct its passage.” Fox attributes it to the pressure of the crowns of the permanent teeth upon the roots of the temporary, but admits, further on, that it frequently occurs without such pressure, and then remarks: “These circumstances seem to prove that the absorption of the fangs of the temporary teeth is an action of nature, sometimes independent of pressure; and it is a very singular circumstance, that at a time of life when so great a quantity of ossific matter is poured forth from all the arteries concerned in the formation of bone, in one particular, there should thus be an absorption of this substance taking place.”

Bell rejects the theory of pressure, and attributes the removal to the action of absorbent vessels—he does not state whether veins or lymphatics perform the act.

Nasmyth says: “The functions of the capsular membrane are of great importance at the period when the temporary teeth are removed to make room for the permanent series, inasmuch as it is the agent by which the removal is effected.”

McQuillen reasons as follows: “The fact must not be lost sight of, that the dental tissues are but a *congerie* of *cells*, constituting an animal matrix in which the calcareous salts are deposited; that these cells have a definite period of existence, and that by the molecular disintegration they degenerate and are cast off. As the animal matrix degenerates, cell by cell, their calcareous contents are liberated and become mixed with the fluids, to be taken up by the venous or lymphatic radicals. If, in addition to this waste, there is no supply of new material, atrophy is the result, and thus the fangs of the deciduous tooth disappear.”

Tomes writes: “Although absorption usually commences on the side of the root which is nearest to the successional tooth, it by no means invariably does so; it may be, and often is, attacked on the opposite side, and in many places at once. The cementum is usually attacked first, but eventually dentine, and even enamel, come to be scooped out and removed by an extension of the process.

“That part of the dentine, however, which immediately surrounds the pulp, appears to have more power of resistance than any other part of the tooth, and thus persists, for a time, as a sort of hollow column. The absorption of the temporary teeth is absolutely independent of pressure; the varying position of the excavation has already been noticed, and it may be added that in many lower animals, for example, the frog or the crocodile, the growing tooth-sac passes bodily into the excavation made before it in the base of the tooth which has preceded it, while if pressure had any share in the matter the cells of its enamel organ, etc., must have inevitably been crushed and destroyed.

“Again, when the absorption and shedding of the first teeth have taken place early, before their successors are ready to appear, perfect little sockets are formed behind the last temporary teeth, cutting them off from the permanent teeth destined to follow them. Absorption, too, may attack the roots of permanent teeth, which is another reason for regarding the process as not necessarily dependent upon approach of a displacing tooth. Closely applied to the excavation produced by absorption is a mass of very vascular soft tissue, the so-called absorbent organ. The surface of this is composed of very large peculiar-looking cells, bearing some little resemblance to those known as ‘myeloid cells,’ or the ‘giant cells’ of recent authors. Microscopic examination of the excavated surface shows it to be covered with small hemispherical indentations, the ‘lacunæ of Howship,’ into each of which one of the ‘giant cells’ fitted, and in which they may sometimes be seen *in situ*.

“In what manner these ‘giant cells’ or ‘osteoclasts’ effect their work is not known, but their presence—where absorption of hard tissues is going on—is universal. Some suppose that they put forth amœbiform processes; others that they secrete an acid fluid, but nothing very definite is known. Abbott does not agree with our English contemporary, and says:

“The assertion of Tomes, that absorption is due to the presence of a freely vascularized papilla, does not explain the decrease of the dental tissues, for the papilla is nothing but medullary tissue, such as we meet with in any part of the organism, where one tissue is about to change into another. Such a papilla may be the cause of the absorption, as well as its result. Another assertion, that the medullary cells eat out the dental tissues by their active growth, or by the amœboid motions, is insufficient to explain the presence of circular or semi-circular excavations and bays, so characteristic of the melting process of the cementum and dentine of deciduous teeth.

“Since we know that pieces of dead bone or ivory may be absorbed with figures similar to those found on the surface of temporary teeth, the idea possibly becomes admissible that, owing to the presence of an acid, first the lime-salts are dissolved

away within certain territories of the dead-bone tissue, in a merely chemical or passive manner, whereupon the soft medullary tissue penetrates the spaces thus established. Quite different, however, will be the conception of this process, if we bear in mind that the temporary teeth, as well as the permanent ones, are made up of living tissues, and an active participation of these tissues must be expected in the process of transformation of the dental into the medullary tissue. As the process of absorption is closely allied to the process of inflammation, and active changes of the dental tissues have, beyond any doubt, been proven to follow inflammation, we may, *a priori*, expect such changes of the bone tissue of the temporary teeth in the process of absorption also."

Bodecker quite agrees with Abbott, and says: "The process of absorption of deciduous teeth is, indeed, closely allied to the inflammation process, and may be considered as a physiological type of tissue-changes owing to the presence of some irritating agency. The dissolution of the lime-salts in bone, as well as that of the hard tissues of the teeth, probably is due to the presence of lactic acid. The dissolution of the lime-salts may invade pieces of ivory planted in a living tissue, or invade dead bone tissue. In such dead bones or ivory we likewise observe the disappearance of the lime-salts in the bay-like excavations, which later are filled with a living tissue growing into the excavations from without."

Probably the best conception of what takes place in this process of absorption is that entertained by Dr. G.V. Black. He describes the cellular elements of the peridental membrane as consisting of connective-tissue cells, which are classified as fibro-blasts, cemento-blasts, osteo-blasts and osteo-clasts, classified in this manner according to their size, their shape, and the function they are to perform. It will greatly simplify matters if we bear in mind that each of these cells is but a modified form of the ordinary connective-tissue cell.

With the "fibro-blasts" we need concern ourselves but little; they are such as are destined to reconstruct, or augment in number, the fibers of this membrane. The "cemento-blasts" are also of little moment in this discussion, as they are those which are

concerned in the building up or repairing of the cementum. The "osteoblasts" are polygonal cells which lie upon the surface of the bone, and usually clothe it as epithelium clothes the mucous membranes. They vary so greatly in size that no measurement will give an accurate idea of them. It is very evident from their position that the function of the "osteoblasts" is the formation of the bone, and there is no growth of bone without their presence. We shall have occasion to refer to them later.

' The "osteoclasts," myoplaxes or giant-cells, Black describes as presenting numerous forms, which vary indefinitely in size, and which are usually multi-nucleated. Occasionally one may be recognized with but a single nucleus, and he has seen them containing as many as twenty-four. From four to ten is a common number. The general inclination is to the round or oblong form. They are very rarely branched, and present no processes. Such forms of cell may be found in other localities, and can be only recognized definitely as "osteoclasts" when found in contact with bone, or some of the hard tissues undergoing absorption. In such positions they uniformly lie in little bay-like excavations in the surface, known as the "lacunæ of Howship." They conform in certain measure to the depth and size of the excavation in which they lie, which fact seems to argue that most of their growth has occurred in this position. Often very small ones are seen in small excavations, and large ones in correspondingly large excavations. But in absorption of greater extent, such as in the hollowing out of the shafts of the long bones, we often find very large cells lying on the surface of the bone without any lacunæ whatever. The number of such cells, however, that are sometimes seen in the tissue of the bone marrow, detached from the bone, but in the neighborhood of extensive absorption, has given Black the impression that possibly these cells may, in some degree, possess amœboid movement during life, and, therefore, a limited power of migration.

He further says: "The function of these cells is sufficiently obvious; they dissolve the bone with which they are in contact, probably by the secretion of a solvent fluid, making room for themselves, and in this way remove the surface of the bone, *i. e.*, cause its absorption."

To briefly recapitulate: We have now the differentiated connective-tissue cells of the peridental membrane classified—as fibro-blasts, whose function it is to reconstruct the connective-tissue fibers; cemento-blasts, for the building up or repairing of cementum; osteo-blasts, for the formation of bone; and osteoclasts, for the absorption of the hard tissues.

The most important question that now remains to be solved seems to be: In what manner do the osteo-clasts perform their function?

Very little experimental work has been done to throw light on this vexed question, nor, indeed, are the means at our command to do such work, hence the answers are nearly always mere conjecture. The most popular theory is that an acid is evolved by the osteo-clast, which in turn dissolves the hard tissues, and which is then absorbed and carried away by the lymphatics and blood-vessels. Why this “acid theory” should be so universally accepted the writer is unable to understand, unless it be that analogy is drawn with the hydrochloric acid of the gastric juice, for in no other instance in the animal economy do we find an acid secreted for the performance of a physiological function. Nor is an acid, even in this instance, absolutely necessary for the digestion of proteids. It is well known that comparatively little digestion takes place in the stomach, and that most of the food is ejected in a partially-digested condition into the intestine, where it is acted upon, and even more vigorously than by the gastric juice, by the ferments of the pancreas, the trypsin, the amelopsin, and the steapsin, and this is an *alkaline* medium.

Why is it not more reasonable for us to theorize, that the osteo-clasts act similarly with the cells of the glands which elaborate digestive fluids, that they have a selective influence, and that certain materials are selected from the blood, which unite with other materials present in the cell, that a *ferment* is thus elaborated, and that the roots of the temporary teeth are *digested* rather than dissolved?

It seems to be the tendency of investigators of recent years to ascribe too many and too various functions to the different tissues and organs of the body. When viewed from a physiolog-

ical standpoint, and when compared to, and brought into relation with, other normal physiological processes, it will be seen that the theory here advanced is quite rational. The chief point for which contention is made, is, that an acid is not necessary for this physiological process, nor, indeed, do acids have the same effect upon teeth as is noticed normally, when subjected to such treatment in laboratory experiments. Nor is a mass of nucleated cells, or a so-called "carneous body" necessary for this process, as is so frequently found described in our literature upon the subject.

Precisely the same cells are concerned, and the same processes are carried on, in the absorption of bone, when a tooth is changed in position in the correction of irregularities, as are concerned and carried on in the absorption of the roots of the temporary teeth. And do we find here a mass of nucleated cells, or a carneous body, or do we think of an acid being secreted for the purpose of dissolving the bone in advance of the approaching tooth?

What probably takes place in the moving of a tooth is, that as pressure is made against it, the osteo-clasts situated in front of the advancing tooth are excited to action, new osteo-clasts are formed from the connective-tissue cells of the peridental membrane, which immediately act in conjunction with those already present, and the bony wall of the alveolus is eaten away or digested—in rare cases only—and then when two or more teeth are involved, is the whole plate of the alveolus moved. As the tooth advances the fibrous tissue behind it is put on the stretch, the osteo-blasts lying against the now deserted wall of the alveolus are also excited to action, their function being to build up and repair bony tissue, and new bone is formed to fill the space.

And in the absorption of the roots of the temporary teeth the osteo-clasts are thrown into functional activity by the pressure of the advancing, permanent tooth, and the roots eaten away or digested and absorbed. There seems to be some doubt in the minds of many as to the part pressure of the permanent tooth plays in absorption, and indeed, Tomes and others assert positively that it plays no part whatever, citing instances where absorption has begun on the side of the root opposite the permanent tooth. It is altogether probable, however, that the osteo-clasts

are excited to action reflexly, pressure of the permanent tooth stimulating the sensory nerve-fibers of the peridental membrane, the impulse being reflected back from the central nervous system by way of secretory or trophic fibers, and the cells thus excited.

The fact that absorption may begin on the side of the root opposite the permanent tooth may be explained by the presence of osteo-clasts in this position and their absence in the proper position, their absence being subsequently supplied as necessity and increasing pressure demands.

Then and Now.

BY J. A. ROBINSON, D.D.S.

A paper read at the Annual Meeting of the Michigan State Dental Society, at Grand Rapids, June 12, 1896.

The world acknowledges dentistry as a profession, and profession is a calling or an art coupled with a desire to do something for the elevation of humanity. Like almost every other improvement in our civilization, it grew out of a necessity. The great heart of humanity responded to the silent call of its brothers and sisters in distress or trouble, and it reached out its benevolent hand to aid them and lift them up. And as the world grew into communities, those who gave the most of their time to aid those who were most afflicted were called doctors, and ministers and lawyers were called doctors, and finally it was given to dentists (who were originally doctors) who attended to troublesome teeth, because they were engaged in a labor of love.

A LABOR OF LOVE.

I.

How did we come by the thoughts of to-day?

They follow along the thoughts that we have,
And follow us through a life's fitful journey,
And never forsake us until we both leave.

II.

All psychical truth is Divine Love and Wisdom ;
It is warp and the woof of the clothing of mind ;
It is what the great Teacher told His disciples :
“ If you search with your hearts you will certainly find.”

III.

If we could go back to the dawn of Existence,
And see the first life as it came from a pool ;
And see it run on through the *Æons* of Ages,
We might then, perhaps, account for the whole.

IV.

The objective life remains for the reason,
And Reason is more intensified Light,
And more intense Light is objective contact
That lifts us above the Darkness of Night !

V.

We get all our thoughts from a light correspondence
To things that we know and quite understand ;
Then enlargement of vision and little reflection
Will lift us till we the whole thing can command.

VI.

Harmonious concert of subjective forces
In their mission toward us in this world below,
Wide opens the door to the Heavenly Vision
And teaches us all that we really know.

VII.

Then what was the need of Divine Revelation
Except to move on what the inner life feels,
And also confirms, with every pulsation,
The holy religion the inner life yields ?

VIII.

The first human soul found a Holy Alliance
With a Father in Heaven, without Adam's fall ;
And that will continue a lasting affiance,
Till in Heaven we fondly shall follow His call.

IX.

There is in this life a sublime continuity
Between father and child in this earthly plain,
And when we pass over it never is severed,
But only the stronger united again.

X.

In Nature the process is always perfected,
And it can not be true that in this *highest art*,
The Infinite Father would have it subverted,
And from Infinite processes He would depart.

XI.

When Saul met the Saviour when He had arisen
And said to him, "Saul, why persecute me?"
It was not to announce a new declaration,
But to show to the world that others might see!

XII.

Then let us move on till this life is ended
And the gates are thrown wide to the regions above;
And then we shall know why the Saviour descended,
And learn that the whole was a mission of Love!

XIII.

The mission of Love gives us Life and its progress
From small insignificant things that we see,
And hurries us on from our present attainments
In the progress of Life, so the world will be free!

XIV.

All hope is a growth of our former existence
That we are unconscious but can not forget;
Unseen and unknown, it is part of *gestation*,
In the fullness of time we shall hear from yet.

XV.

Life itself has no ending, it had no beginning,
'Tis a part of the Great Life that filleth the world;
'Tis an emblem of Nature growing unto perfection,
And growing in beauty as it is unfurled.

We are standing on a segment of the ceaseless round of Time. Nature and all organic matter is one ceaseless round, and civilization and art, and culture and inventions that make us what we are (and dentistry), are fit emblems of the progress of all things in Nature, and even Nature herself, from the first star-dust of which this planet is composed, to the beautiful world on which we live, with its lovely forests and mountains and rivers, made by Nature herself and improved and beautified by the hand of man as he progressed in modern civilization and culture. Prof. Taft once paid me the *high compliment* of being "the oldest dentist in the world," and as Nature repeats itself year after year, and old people are prone to repeat themselves, and tell how things were when they began life, and what took place in their youth, and recapitulate the experiences of their young life, I thought it might be of interest to some of the younger members of the profession to learn what dentistry was when I began—in the childhood of the profession. It was in the year 1830, or sixty-six years ago. I do not recollect the exact date, but I was an apprentice in a small watch-factory or watch-shop where they repaired watches and made a few new ones every year.

There was a Dr. Dewan (a French dentist), who came to Old Concord, Massachusetts, to start a new business—taking care of the teeth.

There were no dental instruments for sale, and my master (Mr. Joshua Haynes) set me to work to make some small tools for Dr. Dewan, under his direction, as I was handy in making small things out of steel and other metals that the common blacksmiths could not do—and so I began by making dental instruments.

The first representation of a set of artificial teeth was in the mouth of a Dr. Baker, an old man who called himself a dentist, who came to our house in Old Concord, Mass., to make an artificial set of teeth for my mother; they were not intended for service, but for *show*—they were made of sheep's or calves' teeth sewed on to a piece of leather, to be worn between the lips and gums, and were taken out while eating. They were worn like glass-eyes—to hide a deformity. This was when I was ten

or twelve years old. When I worked for Dr. Dewan I was seventeen or eighteen years old. Dr. Dewan came a second time to Concord to work, and brought some human teeth that were said to be taken from the mouths of the soldiers who were killed at the battle of Waterloo, in Napoleon's battles, and were brought to Boston for sale.

I watched Dr. Dewan while he was making his partial sets of teeth out of bone, and assisted him, as I was with him while he giving me the ideas of what he wanted to use his instruments for, so when he returned I made a few small pieces that were worn comfortably; they were tied in with a silk thread that kept them in place by being tied to the teeth that remained in the mouth. I do not think that until 1831 or 1832 there had ever been any artificial teeth made on plates of gold or silver. The first financial crisis began in this country in the year 1828. It soon took possession of all New England, and all business was broken up, and the factories were very soon closed and the towns seemed almost deserted till 1835 or 1836. I was keeping a watch-shop in Lowell, at No. 16 Merrimac Street. There was a Dr. George Mansfield whose office was over my store; he was a medical doctor, but did some work on the teeth. In the dull times I spent a good deal of time in his office, and finally I went into his office and stayed and studied with him a full year, and gave him two hundred and fifty dollars to teach me what he could about the teeth, then went into dentistry.

I then bought me a horse and wagon, and a few instruments and made some, and started out into the country and practiced in the towns where I could find anything to do. My dental office was the bar-room, and my dental-chair I made by seating my patient in a common chair, and placing my foot in another chair, and standing on one foot and resting the head of my patient on my knee of the other leg, and did all my operating in that position. If I operated in a home I placed a low cricket on the floor to sit on, and placed my patient on the floor to sit down with the head resting against my left arm to steady it, and worked with my right hand and arm. Sometimes the girls and boys complained of the awkward position, and then I set a rocking-

chair across a shoe-box to steady the rockers, and did the work in that way if I had a long job. I worked in that way more than a year. Drs. Harwood and Tucker had the best and most extensive business in dentistry in Boston. Dr. Mansfield knew them as they were all physicians; in fact, every dentist was an M.D. Dr. Mansfield introduced me to them, and told them what I could do in gold and silver work and making solders, and as the *bone sections* were out of use and mineral teeth were being used, I was welcomed into their office in Boston.

The Boston dentists were very secret about all their business, and "*No Admittance*" was placed over the door of every dental office—unless you wanted something done to your teeth. The Stockton teeth were introduced, and artificial work was made on gold and silver. A large number of dentists made their own teeth. Dr. N. C. Keep made the most natural in color, and most of the dentists went into tooth-making. I made teeth for quite a number of dentists from casts of the mouth, sent to me at Old Salem, where I resided before I came West. Dr. N. C. Keep succeeded in getting the most natural in color, and I kept a man to manufacture teeth for some dentists near Old Salem.

Dentistry can truly be said to be an American institution. And it came by the art as a *necessity*—for Americans have the poorest teeth among all peoples. We have a bilious climate, and the working people indulge in more luxuries in living than the average nationality in the history of man; and a very large number of improvements have been the product of the American mind. A person does not usually deserve any credit for improvements brought about in mechanical appliances or art, or what we call genius, any more than he does for the year or the place where he was born. When I said in the beginning of this paper that "we were standing on a *segment* of the ceaseless round of Time," I did not wish to be understood as a part of the yearly journey of the earth around the sun, but of the race from barbarism till to-day. The round of Time, from the discovery of America by Columbus to the Chicago Exposition was 400 years, and the round of Time from the Mosaic account of Creation is 7,000 years; and the round of Time from the Arayan

life on this planet (according to Mr. John Fiske) is 45,000,000 years, since they have left a history that can be understood. From the Pilgrims till to-day is about 250 years.

This is true of every age that we have passed over, and will be true so long as we have a law of progress. There is no wealth but what we get from the earth, from which we live, and the children we have and educate to be good men and women. Benjamin Franklin discovered the law of Electricity, and Edison has improved the product of his brain that had silently been improving for two hundred years.

The American dentist has taken the lead as an operator of the dental art. Dr. Miller, of Berlin, who has done so much in literature to help the profession, is an American by birth, and only resides in Berlin because he could be more of a helper by a residence in a foreign country than he could by remaining in his native land. The Yankee elements of character have been so dependent on their own resources for gaining a living, being cast on the rocky coast of New England, had become very strong and while they made many mistakes in theology by clinging to the prejudices of past generations they became very strong and suggestive as a whole, and being dependent on themselves, on the rocky coast of New England, to fight their way with the elements as best they could, they became inventive in every department of life, and their strong characters gave them an individuality of inventive genius, so that if we look up the records of the Patent-Office we will find a large share of the patents come through the American mind.

Then, the eastern portion of the continent being settled first gave them their institutions of learning at an early day, then the education and culture they had received led them to try and preserve what they had been endowed with, and the conservative life they led warned them to look out for their physical natures, and finding that the fillings and artificial substitutes were not as good as their natural teeth, these same persons then introduced rubber-work and crowns and bridge-work—and dentistry grew into a profession. I do not know as I ever heard of the

nationality of the person who introduced crowns and bridge-work, but I presume he was of Yankee stock.

Neither do I think the riddle more than half solved by the profession that will make artificial dentures perfect, neither will it be till we have a cement that will seal the cavities in the teeth that are decayed and be strong enough to do good solid service in mastication, and a generation born who will learn to take better care of the teeth. I suppose I might add, in passing, that there is in use in this city to-day what is known as a *patent filling* that I have seen every day for the past two years, besides making a good many by the same process, within the past seven or eight years, that will make as great improvement as the rubber and metal work over the bone sections in former years, or crown and bridge-work over old-fashioned methods. I am certain if you will try it you will be as pleased as you have ever been with any new thing you have ever tried. Do you ask me in what way it has improved upon the mallet for filling teeth?

I answer: by reducing the time employed in the operation *one-third*; by abandoning largely the use of the *rubber-dam*; by saving more teeth than can be saved by the mallet on account of *weak walls*, and by making it possible to do it for less expense to the dentist on account of *actual cost*, and in making it just as good, if not better, when finished, for the person who has the work done, and the immense comfort to the patient during the operation. I have daily witnessed the working of this new method for the past two years, and have seen a register of more than *two thousand fillings* that have stood the ordinary work in mastication, from day to day, for the past eight years, and can assure you, gentlemen, it is a *pronounced success*, full as much as good dentistry done by good operators. *Go and try it!*

But first learn how to do it. It has turned Whittier's poetry into prophesy when he says:

"Step by step since time began
We see the steady gain of man."

Benefits of Dental Society Meetings.

BY DR. D. E. DELZELL, LOGANSPOUT, IND.

Read before the Indiana State Dental Society, Indianapolis, Ind., June 30, 1896.

Association stimulates ambition, develops the intellect and makes one more bright and companionable. This is true of the professional as of the social side of life.

Man is a social being, he has advanced under social conditions, and there is in the professional, as well as the mental and moral life, profounder reasons for association as a means of educational and professional growth than there are for mere material ends, and the time has come when we cannot afford, even in a pecuniary sense, to ignore associations. There is a communication of mind with mind in which probably all who associate with one another participate, however unconsciously. There is not an individual, however humble, that does not have some influence, and when we put our minds in concord with others, when our hearts vibrate in harmony with them, how much we can do for the benefit of each other.

Association gives a man greater power for growth. The growing man learns something from everything he sees or hears ; nothing can touch him that does not teach him. The power to grow is fed by nothing so much as keeping the mind open to every possible suggestion from every possible source—"to surrender one's self to the education of life is to receive and give, in the largest measures."

Progress is the eternal law of nature, and in this progressive age, with the rapid strides our profession is taking it is necessary for us to keep wide awake and use every energy at our command in order to keep in touch with it. It takes a better dentist to make a financial success now than it did ten years ago ; and ten years hence the man who sticks to the methods now in vogue will find himself more of a back number than are the laggards of to-day.

The dental society largely contributes to the fraternal inter-

course and good-fellowship of its members. The interchange of ideas through papers, discussions and clinics increases our knowledge and is a well-recognized avenue through which the standard of our profession is brought to a higher plane, to not only the members but to the world at large. Here it is that men of brains and genius professionally show their light, and what is their knowledge becomes through the dental society the knowledge of all of its members. It will be found that the leaders in any profession are the leaders in associations for the advancement of their chosen profession, be it what it may.

The ministers have their associations, the lawyers theirs ; in fact, all callings in life have their societies. He who scorns associations naturally places himself beyond the reach of progress ; he will get into a rut and the probabilities are that he will stay there.

Isolation dulls ambition, breeds selfishness, suspicion, distrust, until all the better feelings are blunted or destroyed.

I well remember attending the twenty-fifth anniversary of the Chicago Dental Society some years ago, and, with the exception of the meeting last year at Detroit, was one of the grandest meetings I ever had the pleasure of attending. At that meeting I saw a great many of the shining lights of the profession from almost every State. Now, to see those men and hear them talk was to me a satisfaction worth many times the cost of time and money that I sacrificed in going.

Personally, I feel that I owe much for whatever success I have attained to attendance on society meetings, Without them I know not where I would now be, and I think that if the profession generally—I mean those who are not in the habit of attending—could be brought to realize the benefit to be derived from attending these meetings, there would be many more of them in attendance than there are generally.

THE American Medical Association will meet in Atlanta, Georgia, May 5th to 8th, inclusive.

The Dentist.

BY DR. B. F. SHEPHERD, PLEASANTVILLE, IND.

Read before the Indiana State Dental Society, Indianapolis, Ind., June 30, 1896.

You will, no doubt, think it presumption in me to present to you a paper on this subject. (Granted, without argument.) But you will all agree with me, that with all his knowing, the dentist should know something of himself. While he is investigating everything within reach, he should take a look within, for there lies his storehouse of wealth—his fortune of strength and power.

Will you go with me, then, a little way, while I try to describe some of the physical, mental and moral traits which should characterize the dentist?

In the first place, he should be endowed with a harmonious temperament and good health. He should have an ample vital-system, so that he can replenish rapidly and abundantly the wastes of his system. This temperament gives cheerfulness, order and cordial magnetism, which carries sunshine everywhere. It also gives plumpness and a slight tendency to fleshiness. It gives a deep chest, with copious breathing-power; a rapid and abundant circulation, and makes a man hearty, zealous and enthusiastic.

He should have an ample amount of the motive temperament. This, when prominent, is indicated by a strong frame, prominent features, hair strong, and a rather dark complexion. He should also have the mental temperament in a pretty strong degree. This temperament gives an active mind, a studious disposition, a love of knowledge, and an interesting, fact-gathering, philosophical and inventive cast of mind. It is indicated by a clear, sharp eye, well-defined but somewhat delicate features, fine hair, fine skin, with comparatively small bones and muscles, large brain and general sprightliness of body, and an abundance of sensitiveness and susceptibility. When these temperaments are possessed in harmonious blending, when each is about equally represented in the man, there will be a good frame, with strength not amount-

ing to coarseness ; there will be refinement without effeminacy, and general strength, earnestness, health, endurance, and the basis of long life ; in short, a well-organized man.

The life of the dentist is one of care, fatigue, patience, perseverance and self-denial. Hence he needs a temperament that lies at the basis of all these qualities. If he has an excess of the nervous or mental temperament he will become easily worn and anxious, irritable and unhappy ; and he will meet his patients with a spirit of repulsion, making the weak and nervous more so, and the irritable still more disagreeable.

If he has too much of the motive temperament, there will be a lack of gentleness and refinement and taste. He will inspire fear rather than confidence, especially with the weak and delicate.

If he has too much of the vital temperament, there will be a lack of studiousness, a tendency to over-eat and live too highly, and thereby produce a muddy mind, an obtuse intellect and judgment, and a sort of grossness which will not be agreeable to persons of refinement and culture.

Nothing is more unfortunate in the practice of dentistry than qualities, constitutional or acquired, in the dentist, which make him ill-adapted to meet humanity, in its more sensitive and delicate phases, pleasantly. The dentist should not, certainly, in his own person, be offensive, yet he should have a world of strength, be hearty and cheerful, with sunshine enough for his own requirements and enough to brighten all with whom he comes in contact, especially in a professional way. The dentist should be so organized, mentally and physically, as not to be repulsive to the refined, yet he should have strength left to minister strength to the depressed and weak. In short, no man needs a better constitution or a more harmonious development than the dentist.

We now come to the inquiry as to his mental peculiarities. And we might say, in general, that perfect harmony and a strong development of all the mental qualities would be highly advisable, but as most men are not thus favorably organized, we will specify some of the indispensable elements.

In the first place, the dentist needs a world of knowledge of a practical character. He should understand anatomy, physiology (especially of the head and face); he should have a knowledge of chemistry, botany, mineralogy, pathology, surgery and mechanical dentistry. These sciences require a full development of the perceptive. The dentist must see or he can never know; he must be a judge of size, form, color, etc., or he will not be able to appreciate the conditions necessary in adjusting artificial dentures, in the alignment or regulation of abnormal conditions, and will fail in the general touch and finish of all his work.

He should also have a large memory, that he may hold all the knowledge he may get from books, from observation, and from experience. His reasoning faculties should be amply developed, so that he can analyze, discriminate, and comprehend the philosophy of the causes involved in a given case: the patient's peculiar temperament and conditions, and circumstances unlike anything he has seen before. Hence he must understand the philosophy involved in the facts. If he has only the perceptive well developed, he will just be able to do what he has seen done, while the case in hand may require very different treatment from anything he has seen. Hence he must fail, and will not be able to strike out any new lines for himself. What he needs is the faculties of the fact-gatherer and the philosopher, with constructiveness sufficient to put facts or materials together creditably.

The dentist should be a man of decision and self-reliance; he should feel that he knows, and is able to do, so that his very attitude will forbid the suggestions of those who will have everything their own way and still hold him responsible for the success of the operation. Many a man who really knows fails because of a lack of self-reliance, thoroughness and stamina equal to his knowledge. He should cultivate that spirit of fortitude which will enable him to grapple with any and all difficulties bravely, decisively, marking the hand of a master in all his work.

The dentist should have combativeness and destructiveness sufficient to give efficiency; enabling him to witness pain and suffering and to employ the means necessary to relieve without trembling or hesitancy. It has been said that the physician

needs the lion's heart and the woman's hand. It is equally true of the dentist—he should have combativeness and destructiveness, firmness and self-esteem, to give the lion-like power—ideality, constructiveness and gentleness, which come from refinement of temperament, to give the woman's hand. We have seen men who had power, self-reliance and persistency, who carried these forces with admirable gentleness and self-control.

He should have prudence, caution, secretiveness and good common sense, and the more common sense the better. Cautiousness will make him desire to do the right thing at the right time and place. Secretiveness will enable him to keep his mouth shut at the proper time, and control his countenance as well as his expressions, and be always master of the situation, when too open an expression would have been disastrous.

He should have large hope and mirthfulness, and an excellent talking talent, so that he may put an atmosphere of mirthfulness and good feeling around him at all times.

Large constructiveness is necessary to the dentist, in fact his profession has been considered by some as only a mechanical trade. While this is not true, yet his ability to put together, his judgment or knowledge of the right conditions in constructions, will mark his success in prosthetic and operative dentistry, as well as all operations in oral surgery. It will enable him to meet the requirements of anæsthetics in dentistry, elaborating and bringing together the many parts into one harmonious whole.

He should have strong social feeling, so that all the relations of social life may be appreciated by him; so that his patients will become friends, and feel a lively interest in his success.

He should have continuity of purpose. All the great minds of the world have been marked by a spirit of continuance, a pushing ahead, and an unflagging zeal which could brook nothing less than ultimate success.

With an ordinary physical and mental man, yet with a great tenacity of purpose, a stick-to-it-iveness that never lets go, a fair degree of success may be attained. Yet, with all the faculties developed and a lack of application, failure must needs be the

only result. Young man, cultivate a disposition to push to a finish any good work well begun!

Over and above all is his moral nature—that spirit of justice, that conception of right, that spiritual attitude toward God which enables him to see His hand in every created thing; who realizes that he is responsible to God for his every action, and that all his developments of physical and mental strength, and in all his perfection and beauty of manhood, he is nothing if he fails in his spiritual relation, in his moral training. For the physical must all pass away, and much of his mental training will go for naught. Then, with proper spiritual and moral training every lick he strikes will be for God and eternity.

He will feel that with the great Master-workman he is carrying out the Redemptive plan; that his life, while devoted to his profession, is, at the same time, making the world better; and as he perfects his own integrity of purpose, while he ascends to the highest point of development physically, mentally and morally, he will, at the same time, be elevating his profession, making it to stand, unblushingly, side by side with the grandest and best, and thus attain the fullest measure of manhood, assuming his right relationship toward God, his profession and his fellowmen.

COMMENCEMENTS.

Detroit College of Medicine.

The third annual commencement exercises of the Department of Dental Surgery of the Detroit College of Medicine were held at the Lyceum Theatre, Thursday evening, June 4, 1896.

The proceedings were opened with a selection from "Martha" by the orchestra, after which Rev. S. W. Horner engaged in prayer.

Interesting addresses were delivered by Professor J. Taft, of

the University of Michigan, and Professor H. O. Walker, of the Detroit College of Medicine.

Hon. Sidney D. Miller conferred the degrees.

A gold medal, the gift of Dr. E. C. Skinner, was presented by that gentleman to Dr. G. H. Lau, of the graduating class.

Dr. W. G. Merdian read the class prophecy, and Dr. G. H. Lau delivered the valedictory.

At intervals, throughout the evening, several vocal and instrumental selections were rendered.

The following is a list of the graduates :

NAME.	RESIDENCE.	NAME.	RESIDENCE.
F E Bush.....	Missouri	A B McEachren.....	Ontario
A W Evans.....	Ontario	F R Nice.....	Michigan
R J Farmer.....	Michigan	C O Keefe.....	Michigan
A Foster.....	Ontario	J Pulford.....	Ontario
H M Lamb.....	Michigan	G P Ritchie.....	Michigan
S H Large.....	Ontario	J E Roche.....	Michigan
G H Lau.....	Pennsylvania	H L Scott, M.D.....	Michigan
W G Merdian.....	Michigan	F J Sheldon.....	Michigan
H Milloy.....	Ontario	A W Stewart.....	Ontario

Richmond University College of Medicine.

Commencement exercises were held April 29, 1896, in the Academy of Music, Richmond, Virginia.

The address to the graduating class was delivered by ex-Governor Fitzhugh Lee, Consul-General to Havana, Cuba.

Diplomas were presented by Hunter McGuire, M.D., LL.D., President.

Prizes were delivered by Stuart McGuire, M.D., Professor of Principles of Surgery.

The total number of dental students in attendance during the year was thirty-six.

The following is a list of the graduates :

NAME.	RESIDENCE.	NAME.	RESIDENCE.
F V Clarke.....	Virginia	J W Marshall.....	Virginia
W J Cowardin.....	Virginia	E C McSparran.....	Virginia
George D Farrow.....	Virginia	Charles A Newland.....	Virginia
Frank Ferguson.....	South Carolina	A Cary Oppenheimer.....	Virginia
M T Gay.....	Virginia	William Pileber.....	Virginia
John H Hartman, jr.....	Virginia	E U Potter, jr.....	Virginia
W R Lynn.....	Iowa		

Western Reserve University—Dental Department.

The annual commencement exercises of the Dental Department of Western Reserve University was held May 19, 1896, at Association Hall, Cleveland, Ohio, at 7:30 P. M.

Rev. J. M. Buckley, of New York City, delivered the address.

The degree was conferred by President Charles F. Thwing.

The Adelbert Glee Club rendered the music for the occasion.

A banquet followed the exercises.

The number of students during the session was fifty-three.

The following is a list of the graduates.

NAME.	RESIDENCE.	NAME.	RESIDENCE.
William George Ebersole	Ohio	Charles Emery Hurd	Ohio
Frank Henry Fagan	Ohio	John William Lewis Thomas.....	Ohio
Joseph Wilbert George	Ohio	John Sherman Van Meter	Ohio
William Oscar Haldy.....	Ohio		

Toronto Royal College of Dental Surgeons.

During the session of 1895-96 of the Royal College of Dental Surgeons of Toronto, Canada, there were one hundred and sixty-one students in attendance, viz.: Seniors, thirty-two; juniors, forty-seven, and freshmen, eighty-two.

The following named persons passed the final examination and received certificates of license to practice dentistry in Ontario, with the title of D. D. S.:

All of the Province of Ontario, Dominion of Canada.

J E Johnston	J A Simpson	C P Sherman
J M Bell	L M Mabce	R H Henderson
W F Templar	J J Brown	J F McMillan
H A Croll	W F Adams	F S Mercer
Percy Smith	E D Washington	J L Leitch
H McQueen	R M Armstrong	W E Lundy
W C Trotter, B.A.	O H Hutchison	A T Sihler
T E Ball	L G Campbell	G W Hoag
C E Pearson	W G Switzer	J G Somerville
F Britton	W Burnet	

Cincinnati Academy of Dentistry.

At the regular monthly meeting of the Cincinnati Academy of Dentistry, held Monday evening, April 27, 1896, the following officers were elected for the ensuing year, viz. :

President—W. T. McLean, M.D., D.D.S.

Vice-President—A. I. F. Buxbaum, M.D., D.D.S.

Secretary—Wm. Lockman, jr., D.D.S.

Treasurer—J. F. Clayton, D.D.S.

Biographical—Dr. P. G. C. Hunt.

Reported before the Indiana Dental Society June 30, 1896.

The present hour has been set apart for us to pay a tribute of respect to the memory of one of our oldest members and most faithful co-laborers.

Phineas George Channing Hunt, M. D., D. D. S., who for more than half a century devoted the best energies of his life to the dental profession, has passed away.

Dr. Hunt was born in Champaign County, Ohio, in 1827, and departed this life April 24, 1896, in the sixty-ninth year of his age.

He laid down life's duties and honors in the fullness of years, surrounded by his family of loving children and a large circle of devoted friends. His wife, Hannah Mary Phillips, preceded him in 1892, leaving four children—Mrs. W. A. Crossland, Mrs. Edward Kingsbury, Dr. George E. Hunt, and Miss Luella Hunt.

Dr. Hunt's father died of smallpox in Springfield, Ohio, and the widowed mother with her children (David P., Ruth, Andrew, Phineas G. C., and Aaron) moved from Ohio and settled at West Liberty (now Knightstown) Indiana, in 1835. David and the younger brothers operated a saw-mill, which stood near where the straw-board mill now stands, and their house was across the line in Rush County.

The Doctor was a mere boy then, and his associates now living say he was a genius, and gave evidence for a bright future. The older brother (David) moved to Indianapolis and

adopted dentistry, and one of his first students in dentistry before 1840 was Austin Ballard, now living in this city. Phineas G. C. went to Illinois, and then came to Indianapolis in 1845 or '46 and began as a student under his brother, and recited many of his lessons to Mr. Ballard.

In 1848 David died, and Phineas G. C. took charge of the dental practice which had been built up by the three Hunts and Ballard, and continued in business until his death. His mother and her five children all died here, and are buried near this city.

On the 28th day of September, 1858, when the Indiana State Dental Association was organized, Dr. Hunt was elected Vice-President, and was elected President in 1891, '92, '93, '94, and again in 1871.

He was a member of the temporary organization of the American Dental Association at Niagara Falls in 1859, and was present and became a member of the permanent organization of the Association in Washington, D. C., in 1860, and became its President in 1872, and he continued as a member up to the time of his decease.

In 1869 the Indiana Medical College conferred upon him the degree of Doctor of Medicine, and the Ohio Dental College conferred the degree of Doctor of Dental Surgery for his distinguished services, attainments and abilities.

As an operator Dr. Hunt ranked among the best in the world and was recognized at the head of the profession in Indiana. Several of the prominent dentists of this city and State were his students.

He was energetic, thorough, and progressive in every work with which he was associated. He contributed many valuable articles to the dental journals, and a number of his instruments, devices, and modes of manipulations, are a part of the great dental-supply trade.

Professor Joseph Richardson, in his "Mechanical Dentistry," gives Dr. Hunt credit for being the first to introduce to the profession the process of attaching porcelain teeth to metal plates by the use of rubber or celluloid, and one of the first to demonstrate the practice of replantation and transplantation to successful ends.

He was an earnest advocate, years before the practice became so popular, to insert pivot teeth on metal-pins, and to use crowns in this manner instead of extracting the roots and making plates.

Also, in various classes of crown, bridge, and porcelain-work. In fact, he was always found in advance for a higher grade of dental art and dental education.

In 1879, when we secured our first dental law, and provision was made for a Board of Examiners under the law then passed and the amended law of 1887, he was chosen President of the Board, and continued for successive re-elections until he served sixteen years, when he resigned to accept the Presidency of the Indiana Dental College.

The high standard of dental education throughout the country is greatly indebted to the efforts of Dr. Hunt, by Association work and through the Board of Examiners.

Dr. Hunt was one of the delegates from the Indiana Board to Cincinnati in 1882, when the organization of the National Board of Examiners was contemplated, and a temporary organization effected. The next year, 1883, he was one of the delegates to Niagara Falls, when the National Board was permanently organized. He took an active part in the business, and by reason of his being an ex-President of the National Association, which was then in session there, he manifested great influence.

During the time we were making efforts to secure the passage of our dental law, Dr. Hunt, with a number of others of us, were required to pledge ourselves to the Legislative Committee that we would organize a Dental College. This pledge secured the law, and when the college was organized Dr. Hunt was placed at the head of the Faculty, which place he held for years.

Dr. Hunt was a genial associate, courteous and dignified, and his personal presence was a source of inspiration, and his judgment and counsel were sought for and appreciated by those who were so fortunate as to come into a close acquaintance with him.

It is well with us that such good, gracious, and grand men as Dr. Hunt lived and shed their influence over their fellow beings. His life was a benediction, and his example was well worthy our imitation and emulation.

Dr. Hunt was born and raised a member of the Society of Friends (Quakers), and much of his simplicity of character was due to this fact.

Dr. Hunt was always kind and considerate for his juniors, and he devoted many hours of service giving instruction to the earnest seeker for knowledge and technical teaching—without hope or expectation of reward, as many of us can testify.

May we ever cherish his memory as a faithful friend and co-practitioner, and exalt his virtues; and if he possessed any faults we bury them with his remains; and may our lives be more useful as we gather inspiration from the effects of his labors.

Respectfully submitted,

H. M. CHAPPELL,
MERITT WELLS,
SENECA B. BROWN.

Taking the Air Without Going Out.

“Elderly people and others who may be temporarily house-bound and prevented from enjoying a regular daily stroll outdoors,” says *The Health Magazine*, April, “can devise a fair substitute as follows: Bundle up as if for the usual constitutional, select a large, sunny room, preferably at the top of the house, open wide the windows, shut off the heat and move around briskly, going to the window and inhaling the fresh air deeply through the nostrils. We have often called attention to the fact that house air, with its many impurities, overheated condition and general lifelessness, is one of the principal predisposing causes to colds and catarrhal affections. Where a patient or invalid is confined to bed, if the shoulders are kept well covered and the head lightly protected, the windows may be opened and the room flushed with fresh air without any special risk, provided the current does not strike them too directly. The danger from want of proper ventilation is decidedly greater. Deep inhalations of air at the open window, taken gently through the nose, impart an enlivening and tonic influence to the whole nervous system, which can soon be demonstrated by a personal experiment.”

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COMMUNICATIONS.

Lining Root-Canals.

BY L. P. BETHEL, D.D.S., M.D., KENT, OHIO.

Abstract of a paper read before the American Dental Association, at Saratoga, New York, August, 1896.

In the treatment of teeth with devitalized pulps, a medication that not only sterilizes the contents of the root-canal, but leaves behind an antiseptic deposit which prevents the subsequent development of micro-organisms, would be an ideal disinfectant.

With this thought in mind I began a series of experiments, some months ago, taking nitrate of silver for the first agent.

We know how useful this salt has been in the treatment of certain superficial cavities in the teeth of adults and various cavities in the teeth of children, preventing decay as long as the discoloration remains. If in this location, where it is exposed to the varying conditions of the oral fluids, it will prevent subsequent decay for a considerable time, why should it not remain unchanged for a much longer period when sealed within a root-canal and remain, perhaps, as a permanent barrier to the development of germs?

Repeated attempts at pumping it into the canal by means of wooden points, broaches, etc., proved unsatisfactory, for the silver nitrate solution would not go beyond the point of penetration of the broach, and the cases most desired to treat were small, branching or tortuous canals, where it was impossible to pass even a broach. By the aid of cataphoresis, however, the silver nitrate was forced beyond where the broach extended, into small canals,

etc., as these specimens show. Microscopic examination shows that the nitrate of silver is forced, by means of cataphoresis, to a greater depth into the tubuli of the dentine, more thoroughly sealing them than when applied to the surface by ordinary mechanical means.

In the preliminary experiments out of the mouth, the silver nitrate was used in connection with various agents, such as sulphate of soda, 1 percent H_2SO_4 , etc., but the silver being itself a good conductor of electricity, it was found most satisfactory when used alone in an aqueous solution made from distilled water, to avoid all organic material. Various strengths were employed from 10 percent to a saturated solution, those giving the best results being from 40-percent to a 75-percent solution.

The process of application is a simple one; adjust the rubber dam, and if the crown of the tooth needs protection from discoloration, apply a thin coating of melted wax to the interior surface. Next apply the silver-nitrate solution to the canal by means of a wooden tooth-pick or any other suitably-shaped piece of wood, pump it downward into the canal as thoroughly as possible, place the electrode into the pulp-canal opening, then a pellet of cotton saturated with the nitrate solution around the electrode at the orifice of the canal, and the electricity does the rest.

The electric current turns the cotton first a light green color, which grows darker until almost black, and serves as an indicator. The time of application will vary according to the condition of the root-canal—whether well opened, its size, strength of current, and percent solution of the silver nitrate. The higher percent the solution the better conductor it makes, and the quicker it is deposited. From one to five minutes seems to be ample time.

After removing the electrode, cleanse the pulp-cavity and canals as well as possible, with diluted ammonia to neutralize the nitric acid set free, and also to hasten the darkening of the nitrate of silver.

In the majority of practical cases I have been using the nitrate after the root-canal has been sterilized, although in several cases it was used without previous sterilization, the cavity sealed and no after-trouble experienced.

This root-canal lining is not advocated for all teeth ; indeed, the practitioner must use judgment in its application. It would not be advisable in the anterior teeth on account of discoloration, or teeth where the foramen is large, as teeth not fully developed and others, on account of forcing it through the apex of its root. Just what would result from such an accident I am unable to state from practical experience. I have tried to force the solution through the apex of a normal root, out of the mouth, but in every instance it has penetrated just through the foramen and stopped, due, possibly, to forming an albuminate when coming in contact with tissues at the end of the root, and thus limiting its own action.

The object of these experiments is to find a means of treating root-canals that are too small to admit a broach, those branching or tortuous, those in flat-rooted teeth, etc., where it is doubtful about inserting a protecting root-filling. If such root-canals are thoroughly lined with the nitrate solution, and it penetrates somewhat into the tubuli, as it does, the probability is that there will be no subsequent trouble, even though the root-filling should be defective. And, indeed, it is a question if root-filling would be necessary at all, especially in small canals.

Roots treated by this process out of the mouth, when filed, reveal the outlines of the canals, their restrictions, obstructions, and unlooked for branches that probably would not be found in ordinary root-treatment and filling, and left, perhaps, as a harbor for bacteria, in which to multiply and cause subsequent trouble.

This is only the beginning of a series of experiments in this direction. What the future may disclose time alone will tell.

DISCUSSION.

DR. ABBOTT, New York, said that cataphoresis takes too much time. He uses chloride of zinc, and fills with oxychloride. He thought the silver nitrate would permeate the tubules and become a source of danger to the cementum and pericementum.

DR. L. L. BARBER, Toledo, O., said that this treatment had proved satisfactory to him where other means had failed. He cited a case of a lower third molar, abscessed, that had resisted

repeated attempts at treatment with various disinfectants, the tooth becoming painful after the dressings had been sealed in. One application of silver nitrate solution cataphoretically, as advocated in the paper, was used, the cavity sealed, and no inconvenience to the patient has been experienced since the operation.

DR. AMBLER, Cleveland, said that while he was experimenting with nitrate under amalgam fillings, Dr. Bethel suggested its use for root-canals, and together they made some preliminary experiments. He had since operated on cases in the mouth and no trouble has been experienced. He does not operate on roots having a large foramen, but where the canals are small and it is almost impossible to pass a broach. Cataphoresis drives the medicament deeper into the tubules than when locally applied, and this is an advantage. In the root-canal operated on with nitrate of silver you have an insoluble compound sealing the tubules and which can not be penetrated by anything from outside. It is not intended for teeth of children or where the foramen is large. It is not claimed that the use of silver nitrate is new, but this particular application of it certainly is. He has used it also with good results under amalgam fillings. There can be no subsequent decay as long as the dark deposit remains. He does not ask any one to use this method if they do not desire to do so, but he has had good results from its use.

DR. STEPHAN, Cleveland, does not think that nitrate of silver should be used under any filling where there is a live pulp, on account of the liability of its causing the pulp to die.

DR. B. HOLLY SMITH, Baltimore, said he was very much pleased with the paper. This was the beginning of a series of experiments in the right direction, and they should be encouraged. He thought the idea of cataphoresis taking too much time, as expressed by Dr. Abbott, was entirely out of place. Let the operator have two chairs, if need be, and a competent assistant to operate the cataphoric machine. He asked how it was that the current of electricity would carry the nitrate along a tortuous canal?

DR. JOS. HEAD, Philadelphia, said that as the canal was much larger than the tubules, it contained a great amount of moisture,

and was, therefore, a better conductor of the electricity which would flow in the line of least resistance.

DR. JAMES TRUMAN, Philadelphia, said that nitrate of silver being a strong antiseptic would prevent the development of germs, but it would discolor the tooth-substance. It would be carried into the tubules by osmosis and where would its limitations be, in the pulp-cavity or in the cementum? He had applied nitrate of silver to tooth-substance and found that it penetrated into the tubules. He preferred to use a medicament that would not discolor, and recommended chloride of zinc. Its application should not be by cataphoresis, however, for that would drive it through the tubules and would be apt to prove dangerous to the cementum or pericementum.

DR. M. L. RHEIN, New York, thinks that if an escharotic should be used that zinc chlorid offers superior advantages. We should use cataphoresis carefully, for the electric current reduces the medicaments to their nascent state.

DR. J. TAFT, Cincinnati, thought that the gentleman had an exaggerated view of the coloration of silver nitrate. In solution it is a colorless liquid. When applied no coloration is observed, but, after a few moments it discolors. Nitric acid is set free and combines, to a limited extent, with the lime salts of the tooth. The silver is precipitated on the surface, and not in the tubules, as an oxid, which becomes inert as soon as its action is limited. The idea of possible discoloration should not stand in the way of its use at all.

DR. A. W. HARLAN, Chicago, said that he made many experiments with teeth set in wax and plaster, and in the jaw itself, to test the penetrability of coagulating agents. A solution of silver nitrate will not penetrate the tubules to any appreciable extent; certainly not enough to cause discoloration of the tooth. The specimens passed around show that the oxide does not reach the cementum. He said he had a number of teeth imbedded, in which he had sealed nitrate of silver solution in 1894, but which he had not yet opened. He had any number of teeth in which the essential oils had been sealed. His experiments in this line have been very extended, and he knew what he was talking

about. Chloride of zinc as soon as satisfied with water, stops its action. You can not drive nitrate of silver through the apex of a normal root, for when it comes in contact with the tissues at the end of the root it forms a coagulate and limits its own action. You will not get a permanent discoloration of the dentine with silver nitrate solution, for, on account of its coagulating properties, its action is limited. He was glad that Dr. Bethel and other Ohio men were experimenting in this direction.

DR. H. L. AMBLER, Cleveland, said nitrate of silver had been often used for superficial decay and to prevent further erosion by applying it to the affected surface of the tooth. He has found that when applied to an eroded surface by means of a minute piece of cotton saturated with the solution and the cataphoric current used, it penetrates deeper into the dentine and the effects are more lasting. Silver nitrate is superior to other agents, for it makes an insoluble compound with the albumen of the tissues. In root-canals just so far as the dentine is moistened with the nitrate you get the discoloration. He has experimented on pulps of freshly-extracted teeth and by means of the nitrate used cataphoretically they are thoroughly destroyed. It might prove an efficient means of devitalizing pulps.

Materia Medica and Therapeutics.

BY J. S. CASSIDY, D.D.S., M.D., COVINGTON, KY.

Reported to the American Dental Association, Saratoga, N. Y., August, 1896.

The process of cataphoresis has probably been the most interesting new feature of dental therapeutics introduced during the past year. Cataphoretic medication, however, has been unconsciously practiced, to a limited extent, for several years, by what was supposed to be merely the effects of the electrolysis of certain drugs in the local treatment of alveolar pyorrhœa, and other septic conditions pertaining to the teeth.

At the clinics of the dental section of the International Medical Congress, at Washington, in 1887, Dr. W. V. B. Ames ex-

hibited a simple electric appliance for developing active iodine at the desired point by the electrolysis of KI. At the same clinic, another gentleman, whose name the writer has forgotten, adopted similar means with a solution of NaCl to bleach darkened teeth. This statement is made merely with a view to the recognition of evolution in this phase of electro-therapeutics, and not for the purpose of diminishing the credit due to Prof. Morton, and others, for introducing this new osmotic treatment.

The physiological benefits obtained in the majority of cases, through cataphoresis, are accepted facts, but the phenomena involved in their production, as yet, remain unexplained.

Heretofore the effects of electric currents on compound liquids have been studied only in connection with electrolysis, and the questions might be asked,

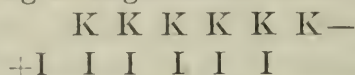
Does cataphoresis ever occur free from electrolysis? Yes.

Does electrolysis, of an electrolyte in porous solid or semi-solid matter, always accompany cataphoresis?

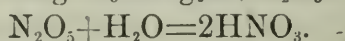
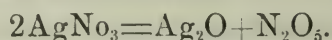
To this I would answer; No, as witness the passage of water in moistened clay toward the cathode without suffering decomposition, and, conversely, the decomposition of KI in contact with gum-tissue, where no intromission of the freed iodine is apparent. This latter example seems to prove that at least one of the laws of ordinary electrolysis might be applied with advantage, in many cases, to our choice of drugs. For instance, those whose decomposition will supply its electro-positive radical as the active agent, will penetrate more deeply; otherwise, as in the case of KI the electro-negative radical I, will not be drawn or pushed cataphorically toward the negative pole; but when free iodine in aqueous solution is used, it acts most charmingly, owing to the carrying power of the water, absence of chemical action, and consequent non-interference with its passage by a more highly electro-positive radical. The extra energy noticed in bleaching, of electro-negative O, developed by this process from aqueous pyrozone, may be accounted for by its greatly increased volume and pressure, due to the electrolysis.

Electro-negative radicals are attracted toward the anode and

the positive radicals to the cathode, probably somewhat according to the following arrangement of KI :



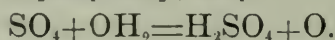
DR. L. P. BERTHEL has reported, recently, successful applications of this method in introducing solution of AgNO_3 into root-canals; the canal, in each instance, although too small for any broach to enter, was completely permeated. This statement is not surprising, however, if we consider the nature of the substance. It decomposes into basic and acid radicals by contact with organic matter, even when applied topically; it is a good electrolyte, and, therefore, the influence of the electric current causes further progression of the basic radical Ag_2O than would occur did separation not take place. The silver oxid deposits as an insoluble, black, inert residue, and the acid radical of the salt escapes with water as nitric acid :



One other rule of electrolysis may be alluded to in this connection, namely: "decomposition of an electrolyte is in the ratio of its chemical equivalent." Accordingly 9 parts by weight H_2O , 98 of H_2SO_4 , and 166 of KI, will react simultaneously by the influence of the same current.

This rule may enable some one to construct a list of—may I venture to name them? "*Cataphoretics*," by combining in certain proportions a too active conductor with a less active one, as in the case of cocain hydrochlorid and guaiacol.

Objections have been made to the use of sulfuric acid by this method, on account of its loss of power by electrolysis. This, however, is not practically true, for although it decomposes into free H, and sulfone, it is again reconstructed at the expense of the water present, enabling the nascent molecule to attack the dentine with more than usual energy, at the same time setting O free.



A liquid conductor, more or less above zero, seems to be es-

essential to this process, and different preparations of the same active principle are indicated for the variations in treatment. As is already well known, the action of cocain hydrochlorid is more effective in reducing the sensibility of dentine, if it be retarded by a non-conductor, such as some of the phenols, of which guaiacol, thus far, is preferred. But when using this salt as a local anæsthetic for soft tissues, a strong aqueous solution would be my own preference.

DR. CUSTER uses blotting-paper, saturated with the solution, and of a size corresponding to the area to be anæsthetized; he places the pad in position, a silver coin is then interposed between it and the anode, and the current turned on. For soft tissues both voltage and amperage may be increased above that indicated for sensitive dentine, without producing any unpleasant effects.

In preparing for extracting teeth, a forked anode, adjusted by a ball and socket-joint, should be used, one prong placed in the cavity of decay, if there be such, with cocain held by cotton wool, and the other point placed well up on the gum in the manner described by Dr. Custer. Dr. Custer further writes: "I am satisfied on the following: Cocain, cataphorically applied on the mucous membrane—and upon the cuticle as well—is almost, if not quite, as effective as a hypodermatic injection. It also possesses these advantages:

"First: The application itself, if properly conducted, is painless.

"Second: There is less danger, because the drug is diffused, and it is not possible for the full dose to enter into the venous circulation, as may happen when administered by the syringe. (I believe all the cases of sudden collapse by injection are due to the dose being injected into a vein and thereby carried, undiluted, to the heart and medulla reflexly.) It is when the cocain is mostly entered into the arteries that the anæsthesia is best and the danger least.

"Third: The danger of septic inoculation is overcome."

A few weeks ago the attention of the writer was called to the decided acid reaction produced by cataphoresis of cocain hydrochlorid on sensitive dentine. This reaction is due to electrolysis

of the salt, the alkaloid proceeding in search of its beloved cathode, while the acid HCl remains at the surface near its own favorite anode. At first this condition suggested the presence of an enemy, but later experiments proved that the relatively small quantity of acid developed can be of no serious consequence to the dentine.

A new remedy has made its appearance recently, bearing the name of eucain, which will probably soon claim a large share of the honors hitherto belonging to cocain as a local anæsthetic. It is an artificial alkaloid, said to be produced by the reaction between, principally, acetone (dimethyl ketone, CH_3COCH_3) and ammonia. The favorite salt is, like that of cocain, the hydrochlorid, which, evaporated from aqueous solution, retains one molecule of water of crystallization, $\text{C}_{19}\text{H}_{27}\text{NO}_4\text{HClH}_2\text{O}$. Eucain hydrochlorid presents the appearance of a white, odorless, crystalline powder, of a bitter, quinin-like taste, soluble in water, alcohol and chloroform. It induces some hyperæmia of the mucosæ, rather than anæmia, when applied locally, but nevertheless, it causes well-marked loss of sensibility. As a "cataphoretic" obtundent of dentine it seems to act favorably, although more experiments will have to be made with it before its virtues in this direction are accepted as satisfactory. From the literature accompanying the sample sent me I learn that eucain is less poisonous than cocain, although their dosages are approximately the same; that lethal doses cause excitation of the central nervous system, convulsions affecting all the muscles, general paralysis, and, finally, death of the animal by respiratory failure. For producing local anæsthesia by hypodermatic injection it is advised to make a solution of one (1) part of eucain hydrochlorid to ten (10) parts of sterilized water. Such a solution, it is claimed, remains permanently unchanged, and can be boiled without causing decomposition. In this particular, at least, it has a decided advantage over cocain; it is probably uniform in its action, other conditions being equal, on account of its immediate derivation from pure chemicals, instead of indirectly from vegetable sources. The claim is made, further, that no evil effects have thus far been reported as sequelæ of hypodermatic injection

for the removal of teeth, although the anæsthesia, in point of duration and intensity, was fully as satisfactory as that produced by cocain.

While acknowledging that there must be differences in degrees of danger by the use, and sometimes abuse, of different drugs introduced by the needle, the evidence of experience proves that unpleasant consequences may follow such an operation, even when the most innocent of all substances be the only one employed.

The American Medical Association.

Reported for the DENTAL REGISTER by MRS. J. M. WALKER.

The American Dental Association held its forty-seventh annual session in Atlanta, Ga., May, 1896.

The meetings of the Dental and Oral Sections were held in the Ladies' Reception Room of the Kimball House.

DR. R. R. ANDREWS, of Cambridge, Mass., was in the chair; Dr. E. S. Talbot, Secretary.

The Section was called to order at 3 P. M., Tuesday, May 5th.

The chairman, in his address, defined the aim of the Section as being the consideration of the higher themes in the realm of scientific research—along the borders of the unknown. He said that evidence of the advancement of the dental profession was found in the growing tendency to band together in stomatological associations, having for their object the consideration and discussion of questions purely scientific. Among the more recent achievements he mentioned the work of Dr. G. V. Black. His experiments, conducted on an accurate scientific basis, have thrown much light on the physical properties of the teeth and the various filling materials in use.

Much thought is being devoted to electrical medication, especially cataphoric methods in obtunding sensitiveness of dentine, and in bleaching teeth.

In the educational field the standard of the schools are ad-

vancing, and dental graduates are taking a higher ethical and professional standing. We are now looking forward to the time when all the specialties of the healing art shall be taught in medical universities, where all shall receive a common degree.

The surgical and medical treatment of the mouth and associate parts are fully as important as those of the eye or the ear, and should be taught under the same medical auspices and accorded the same distinction.

The special topic of Professor Andrews' address was the finer processes which take place in the building up of enamel, being a review of, and friendly criticism of, the first installment of Dr. J. Leon Williams' series of papers on "The Formation and Structure of Dental Enamel," published in the *Dental Cosmos*, February, 1896.

The special point dwelt upon, in regard to which Dr. Williams and Dr. Andrews differ widely, is the function of the "stratum intermedium."

Professor Andrews commended highly the work of Dr. Williams, as a substantial contribution to the literature of the subject, and especially valuable as showing, for the first time, what the so-called *stellate reticulum* really is.

He pronounced the photo-micrographs of Dr. Williams the clearest and finest he had ever seen, but thought some of the appearances were due to post-mortem changes in the tissue, and, therefore, misleading; that it is necessary to photograph the tissue as near the life of the animal as possible.

In the brief discussion given the paper, Dr. YOUNGER, San Francisco, expressed his approval of the views of Professor Andrews on the subject of "Dental Education."

DR. H. D. WILSON (Bainbridge, Ga.) admired the determined tenacity with which the essayist takes hold of his subject, and regretted that he was not sufficiently well-posted to discriminate in the fine points involved.

DR. WALKER (Pass Christian, Miss.) said that in view of the statements made by the essayist as to the aims and objects of the Section, the name of the Section (Dental and Oral Surgery) was not sufficiently broad, and suggested that the name be changed to

"Section on Stomatology," thus placing it in line with the sections of Ophthalmology, Laryngology, Otology, etc.

DRS. ANDREWS and TALBOT *looked* approval of this suggestion, and at a later session Dr. Talbot announced that a resolution to that effect had been introduced in the General Session of the Association, which, however, has to lie over for one year.

On motion, the thanks of the Section were tendered Dr. Andrews for his magnificent presentation of the subject.

On motion, subject passed.

DR. S. W. FOSTER (Atlanta) read a paper entitled "Disease of the Oral Cavity a Potent Factor in General Disease." Doctor Foster spoke of the baneful sequences which follow diseases of the teeth and oral cavity, and the relationship these diseases sustain to general disease.

The oral cavity has numerous important functions—articulation and vocalization of speech—the prehension, mastication and insalivation of food, etc. From the first breath of life to the last breath of old age, the functions of the organs of the oral cavity are pre-eminently essential to life and health, and any pathological condition here is immediately made manifest in other organs of the body, often the most remote. It is an admitted fact that greater infantile mortality results from abnormal conditions of the oral cavity than from all other diseases combined. The period of first dentition is the most critical period of life. If the development of the tooth is more rapid than the absorption of overlying tissues, local inflammation results; the oral secretions are increased and become abnormal in character; reflex pressure on the nervous and vascular supply augments the trouble, and the entire system becomes involved. Nourishment is refused, the alimentary canal becomes too active, relaxation of the vital forces follows; fever, convulsions, paralysis follow, and death terminates the struggle.

From the anatomy and functions of the trigeminus it often becomes the source of remote lesions—neuralgia, auritis—during the eruption of the first permanent molar. Impacted third molars are the frequent source of intense suffering and serious trouble. Dyspepsia follows the loss of masticatory power, due to diseased or lost teeth. Lowered jaw-vitality invites disease.

Any pathological conditions in the oral cavity causing deficiency in the quantity or quality of the fluids which the food first meets become a hindrance to nutrition and make prompt impression upon the stomach. Females are often anæmic, debilitated, despondent; the physician discovers nothing wrong in any special organ and pronounces "nervous debility," prescribes tonics, change of air, etc. An examination of the oral cavity would too often reveal a seething pit of filth, suppurating sinuses, and carious teeth, contaminating every breath of air taken into the lungs, and vitiating the oral fluids commingling with the food, poisoning it ere it reaches the stomach, causing impaired nutrition, lowering the vital forces and causing the general breaking down in health. Physicians and dentists should co-operate more cordially. The physician should know more of dentistry, the dentist more of medicine. The medical colleges should have chairs devoted to the principles and practice of dentistry, and dental schools should teach more of medicine.

In the discussion of the paper Dr. Younger emphasized especially the disastrous effects of pyorrhœa alveolaris and cited two strongly illustrative cases out of the very many that have fallen under his observation.

DR. FRANK HOLLAND, Atlanta, cited a case in which a lady was under treatment by a prominent surgeon, of Atlanta, for nasal trouble subsequent to a severe attack of la grippe. She had been under his special treatment for six months without the slightest benefit. Visiting Dr. Holland for dental services, he, at once, found that the trouble was due to pus in the antrum from an abscessed central incisor, from traumatic injury, the patient having had a fall some time previous, striking the central incisor and causing the death of the pulp. It had remained in a dormant condition until roused by the attack of la grippe, when an abscess developed which was unobserved and neglected under the nasal specialist's treatment.

DR. JOHN S. THOMPSON, Atlanta, cited a case with similar results, but due to an impacted superior third molar. In this case it had been found necessary to remove the second molar and cut out the third molar, which was imbedded in the process with

the roots turned up and entangled with the roots of the second molar. Hemorrhage from the nostril followed the removal of the molars and the opening into the antrum was found. With proper treatment the man was soon restored to his field of duty, a healthy man once more.

DR. ROSSER, Atlanta, cited the case of a lady who had been under a physician's care for seven years. She visited his office for dental examination, being brought in supported by her husband on one side, her brother on the other, and accompanied by her daughters. He found her mouth in a dreadful condition, with only three sound teeth—seven broken off and with fistulous openings, pressure with the fingers at almost any point causing pus to exude from the gums. She was, of course, unable to masticate her food, but swallowed it as best she could, with these cesspools continually pouring their contents into her stomach along with the unmasticated food. She was dyspeptic, hysterical, emaciated, and had not known a night's rest for years. She had not been able to sit up all day for seven years, and all the time under a physician's care! In the removal of the useless debris of broken-down teeth it was found necessary to dissect out much necrosed alveolar process. The mouth was put in proper condition, and two months later when a pleasantly, smiling, well-looking lady came in, and addressing him by name, he was quite unable to recognize her until she recalled the circumstances of her previous visit. She said that she felt perfectly restored in health, flesh, appetite and spirits, and had had occasion to call in the physician but once since she had received his dental services. She now enjoys her food which she is able to masticate and which is, apparently, well-digested and assimilated.

Dr. Rosser cited another case in which pus from a suppurating second superior bicuspid had burrowed between the palatal plates, escaping behind the soft palate, being under a physician's treatment for "throat trouble." The sinus was readily traced from the dead tooth, and with proper dental treatment the *throat trouble* disappeared.

PROF. ANDREWS: Such typical cases as these are of interest to physicians as well as to dental specialists. If others have similar cases it would be well to have them related.

DR. GAYLE, Atlanta: I had a patient whom the physicians had treated in vain for catarrh. She came to me for treatment of an abscessed central incisor. When that was cured the catarrh also disappeared.

In another case the patient, a lady, had been bedridden for five years and was supposed to be about to die from extreme emaciation. She was found to have a severe case of pyorrhœa alveolaris. Both upper and lower teeth were so very loose that they were all removed. Her father, however, would not have teeth made for her as she was about to die.

She did not die, however, and after ten or twelve months had made such progress toward recovery that full upper and lower dentures were inserted, and she eventually recovered her normal health and weight.

DR. TALBOT said that he was much interested in the paper read by Dr. Foster, because, in his lectures in the medical college with which he is connected, he makes a specialty of the relation existing between dentistry and medicine. The late Dr. Allport was influential in the introduction, in the seven medical colleges in Chicago, for Chairs of Dental and Oral Surgery, and they ought to be established in every medical college. It is doubtful if there is a medical college in existence that would not be glad to have this feature introduced. So many pathological conditions of the body are due to the lesions in and about the mouth; very few physicians realize how much general disease is the result of oral conditions—abscessed teeth, pyorrhœa, etc., or the great benefit to the general health to be derived from putting the mouth in a healthy condition. In one case, after the removal of all decayed teeth past saving and all teeth loosened from pyorrhœa and putting the mouth in general good condition, the patient gained thirty-five pounds in weight in three months. Dr. Talbot said that from his position in a medical college he was able to impress upon physicians and students that it was useless to treat patients until the mouth was restored to a healthy condition, and the wonderful effect upon the general system produced by putting the mouth in hygienic condition. He makes a point with students that in diseases of the nasal cavity, fistulous open-

ings of the head, face or neck, the teeth shall, first of all, be thoroughly examined in seeking for *the cause*, because in a large majority of cases *dead teeth* will be found to be the original source of trouble. He endeavors to impress upon physicians the importance of an examination of the teeth and the necessary treatment of the mouth as a preliminary to, and adjunct of, constitutional treatment. Subject passed.

DR. H. D. WILSON, Bainbridge, Ga., read a paper on the "Amenities of Professional Intercourse," "a poem in prose," which was passed without discussion, the essayist having completely exhausted the subject.

DR. W. E. WALKER, Pass Christian, Miss., read a paper (No. 2), entitled "The Movements of the Mandibular Condyles and Dental Articulation."

This paper, Dr. Walker stated, is a continuation of the line of thought and experiment indicated in a paper read before the Southern Dental Association in 1895, and published in the *Dental Cosmos*, January, 1896, being additional arguments in favor of, and further proof by different methods, of the position taken in the first paper, viz.: That the movement of the condyle, in the function of mastication, or in opening the mouth is not only forward, but *also downward*, in a direction bearing, in each individual a definite relation to the facial line expressed by the angle formed at the intersection of the two lines—the condylo-facial angle and consequently the condylo-occlusal angle, governing the articulation of the teeth. These angles vary very considerably, not only in different individuals but even in the two condyles of most individuals. In the lateral movements of the jaw the condyle on the side from which the jaw is receding does not stand still, or "merely rotate on its axis," as stated by the authorities, but moves upward and backward in a definite ratio to the forward and downward movement of the condyle on the side toward which the jaw is advancing—very slightly in some cases but very considerably in others, and not infrequently in very different ratio in the two condyles of the same individual. Subsequent to the publication of his first paper, the writer having requested the assistance of friends having better opportu-

nities for literary research was referred by Dr. E. C. Kirk to certain similar investigations made under the direction of Prof. Henry P. Bowditch in the physiological laboratory of the Harvard Medical School, of which a report was published in the *Boston Medical and Surgical Journal*, July 4, 1889. He was much gratified to learn that these distinguished investigators, working by widely different methods, had also reached the conclusion to which he had been forced, namely: that "certain errors exist in all descriptions of this articulation given by the eminent anatomists and physiologists."

To further verify the results of his own original methods of investigation and proof, Dr. Walker constructed an apparatus similar to that described as having been in the Harvard investigations, and was gratified to find that by the photographic method his observations were fully corroborated. A light framework being securely attached to the lower jaw, with a bright bead placed directly over the condyle, the line traced by the bead in the movements of the jaw as photographed, shows exactly both the extent and the direction of the movement of the condyle. A series of these photographs accompanied the paper, showing the movement of both the right and left condyle, in opening the mouth to its widest extent, in the lateral movements, as in grinding the food, and in the protrusion of the jaw, to set the teeth on edge, as in biting. Dr. Walker showed also a series of lead-pencil tracings made by the movement of the condyle, a small bit of pencil-lead having been, in this series of experiments, affixed to the framework in place of the bright bead. A piece of stiff paper being held against the face with the edge parallel with the facial line, the movement of the jaw caused the lead-point, placed over the condyle, to trace upon the paper the extent and the direction compared with the facial line, of the movement of the condyle.

A special interest attaches to the relations between the line thus traced by the condyle—in the movements of the mandible—and the facial line, for a certain definite relation exists between the cusps of the teeth and their interlocking, in articulation, and the angle made by the intersection of the facial line by what

Dr. Walker calls "the condyle path," that is, an extension of that portion of the condyle-tracing made in the short movements of mastication, lateral and protrusive, the condylo-facial angle; and also the angle formed by the intersection of the condyle-path and the plane of occlusion (the alveolar plane in edentulous subjects), the former angle varying from a very acute angle in some cases to almost a right angle in others, and in some individuals an equally wide difference between the right and the left condyle angles.

To reproduce the perfect articulation by models of the natural teeth, in the different positions of grinding and biting food, right and left lateral movement, forward protrusion placing the incisors on end, etc., it was found necessary to construct an articulator with an adjustable joint, permitting the reproduction of these varying angles.

On the other hand, to correctly articulate artificial teeth it is necessary to ascertain the angle formed by the condyle-path and the facial line and the condylo-occlusal angle. To accomplish this measurement Dr. Walker has devised an appliance which he calls "Facial Clinometer," by means of which the required angles are measured and registered on degree-gauges, the distance which the two condyles travel simultaneously, forward and downward on one side and upward and backward on the other, being registered in millimeters.

The Articulator (Walker's Physiological Articulator) being provided with similar degree and millimeter-gauges, the Articulator is set to correspond with the recorded clinometer-measurements, thus securing the exact reproduction of the movements of the mandible for the case in hand, and consequently the articulation of artificial teeth conformably to those of the lost organs in each individual case. (A photograph of the Clinometer in position illustrates the paper).

A knowledge of the true movements of the condyles and their relation to the articulation of the teeth, is of great importance in many departments of dental work—as in the correction of the articulation of the natural teeth, whether in orthodontia or in the treatment of Riggs' disease (commonly known as

pyorrhœa alveolaris); in the shaping of artificial cusps, whether in fillings, crown-work, bridge-work or plate-work, and also in the treatment of diseases of the facial muscles, of the glenoid fossæ, or of plastic adhesions.

In the discussion of the paper Dr. Talbot said, that having made a special study of the jaw for the past twenty years, he had frequently met with very puzzling conditions which he could not understand, but upon which the paper of Dr. Walker threw much light. He considered the paper a very valuable one, being a presentation of scientific investigations based on actual facts, and with deductions of great practical value. He hoped that Dr. Walker would continue that kind of work, reviewing what he has done and verifying it by continued observations. More good can be accomplished by sticking to one point and bringing out all there is in it, than by attempting to cover too broad a field.

DR. G. V. I. BROWN Duluth, Minn., said that the paper was of great interest to him, as he had made a special study of mal-occlusion in connection with pyorrhœa alveolaris, as it is in that direction that we must look for the cure of pyorrhœa, rather than to the use of drugs.

DR. JOHN S. THOMPSON spoke of the importance of being able to retain the cusps of artificial teeth, as giving the proper masticating surface for grinding the food. By the old methods of articulation it is very difficult to do this. Dr. Walker is undoubtedly on the right track.

DR. ANDREWS spoke of the difficulty of procuring characteristic, individualized, artificial teeth. They are all too much alike and faulty in shape.

DR. ROSSER thought the fault in this matter lies largely with dentists in not educating their patients along this line.

DR. WALKER agreed with this, and said that the S. S. White Company had promised to make some teeth with normal cusps from models he had agreed to furnish, but that he had not yet had time to attend to the matter.

DR. ANDREWS hoped he would be able to do this as it was a very important matter.

DR. WALKER: When we are unanimous in the demand, the manufacturers will not refuse the supply ; but as long as dentures are made with flat surfaces, mere mashing machines, it will be useless for them to make teeth with normal cusps. The Whites say they did, at one time, make teeth with good cusps, but the dentists complained that they had to grind them off, and preferred the old models. I always demand the longest cusps to be had, as I would rather grind down the cusps a little than have to grind out a sulcus and make cusps.

Subject passed.

DR. E. S. TALBOT read a paper (No. 3) on "Pyorrhea Alveolaris." He described the symptoms and progressive or successive conditions, beginning with simple inflammation of the gums, and ending with exfoliation of the teeth, and reviewed the different theories as to the cause of the disease, which, he said, should more properly be called Riggs' disease, the different names given it, which are mostly descriptive of different symptoms or phases of the disease, not being applicable to all cases.

DR. TALBOT rejects the uric acid theory, as *not proven*. He regards the deposits as secondary in importance, and the gum-tissue as the original seat of the disease, the deposits being due to the attraction of dying tissue for the lime-salts held in solution in the fluids of the body.

Among the causes, Dr. Talbot attributes much to *modern dentistry*. The use of the rubber-dam and of wedges ; of the appliances used in the correction of irregularities, protruding fillings or abnormal spaces left between the teeth, crown and bridge-work, artificial teeth--especially ill-fitting plates, and other sources of irritation of the gum-margins with remitting inflammation. A study of the structure and location of the peridental membrane, and the anatomy and physiology of the parts involved, throws much light upon the subject. The disease is a condition of atheromatous degeneration, a softening and liquefaction of the tissues, the gums being inflamed from local or constitutional causes, this extending to the capillaries of the peridental membrane, its vitality is impaired. New connective tissue is formed, causing a thickening of the peridental membrane. Ath-

eromatous patches are formed which become infected with pus germs. The granular *debris* or calcic deposits are a secondary consideration, the inflammatory exudate and pus-formation being primary.

The paper was illustrated by a series of photo-micrographs showing the pathological conditions of the peridental membrane and other tissues in different stages of inflammation and degeneration. The cause being understood, relief is easy if taken in time. In the removal of deposits and other foreign substances great care must be taken not to injure the gum-tissue, which must be stimulated and kept hard and firm. The deposits must be cautiously drawn away from the raw edges of the peridental membrane and the parts thoroughly disinfected; tonics to restore the membrane to a healthy condition are also requisite.

All teeth that are very loose in the sockets should be removed and the space between roots and alveolar process disinfected. To contract the gum tightly about the necks of the teeth and prevent further ingress of foreign matters Dr. Talbot finds the officinal preparation of the tincture of iodine the most effective.

In the discussion of the paper Dr. Younger said that he considers pyorrhœa to be a disease of the pericementum and not of the gums or other tissues. He disagrees with Dr. Talbot in treatment except as to the thorough removal of all deposits. He long ago abandoned the use of iodine except in cases of excessive inflammation. What is wanted is to create an irritation that will excite granulation. That is best accomplished with lactic acid which will prove successful in twenty-four out of twenty-five cases. Dr. Younger described a number of cases successfully treated in the clinics of the Stomatological Club, of San Francisco. If this treatment fails it will be because all deposits have not been removed, or because the pockets have not been first cleansed of blood, serum, etc. The lactic acid is best kept in a little test-tube which can be held over the alcohol flame until liquefied and warmed. If not warm it will cause too much pain. One application, *once for all*, will be all that will be required if the deposits have been thoroughly removed and the pockets properly cleansed. He said: "You may laugh, but try it."

Before applying the lactic acid the surrounding tissues should be protected by coating with glycerine and covered with cotton; then flood the pocket. The lining membrane will be exfoliated, contraction follows and the gum soon clings closely to the root again. Then wait a week. If the point of the syringe can be introduced it is proof that the deposits have not been thoroughly removed, or that the application was not sufficiently thorough to cause perfect exfoliation of the lining membrane, and the treatment must be repeated.

When union is not prompt in cases of implantation the application of lactic acid in the socket will secure perfect union, which, Dr. Younger said, upholds him in his theory of persistent vitality, as there could not otherwise be such perfect reattachment.

He said: "By my method take one tooth at a time and give one, two, three or four hours, if necessary, to the removal of deposits. The next day take another tooth in the same way. If there are three contiguous teeth to be treated, clean the central tooth and the adjacent sides of each of the adjoining teeth. The next day finish the outer sides but do not disturb the central parts. The treatment is very simple but it *must be thorough*, and be very particular not to do any washing out after applying the lactic acid. Flood the pockets and leave it there. As a subsequent wash chlorate of potash, as strong as can be borne, will be found very soothing."

DR. TALBOT: You mean, I suppose, that there will be contraction of the gum-tissue around the root of the tooth—you do not mean adhesion?

DR. YOUNGER: I mean *absolute union*. If there is not union there is no cure. After my treatment the conditions are absolutely the same as where there has been no pyorrhœa, or as before the attack.

DR. B. H. CATCHING: I have never found any instruments that suit me. Are there any *Younger* instruments? If you have them and will publish the illustrations I would be glad to get them.

DR. YOUNGER: My fingers are very sensitive and the con-

tact with steel instruments is unpleasant to me. I coat the handles of my instruments with sealing wax, using different colors for different instruments—as red, blue, purple, black, white, etc., so that I know the point by the color of the wax on the handle. I prefer a large handle—from one-half to three-quarters of an inch through. With such a handle you get a power and force that you can not get with instruments with small handles of steel or iron.

DR. R. B. ADAIR, Gainesville, Ga., said that he had been treating pyorrhœa for twelve or fifteen years in a rural district where there was scarcely a patient but who had more or less of it. He considers the disease just as amenable to treatment as anything else in the line of dental practice. Cases that he treated and *cured* twelve or fifteen years ago have remained perfectly sound and well to this day. He has recently seen one of the first cases that he treated and which he reported before the Georgia State Society, in which there had been ten deep pockets. The patient came in again recently for fillings in two teeth. The pyorrhœa has remained cured and the gums are sound to-day.

While he is grateful to Dr. Talbot for many points brought out in the paper he takes issue with him as to the initial seat of the disease, having seen cases where the deposits were to be found only near the apex of the root without any external opening—an external fistula present but with the margins of the membrane firmly attached. He was also not so particular about not wounding the peridental membrane. He uses Allport's scalers, which are thin and flexible, and go right to the bottom of the pocket and tear out everything, scraping away the necrosed edges of bone, getting new tissue.

He would have hesitated to use lactic acid as it breaks down bone-tissue very rapidly so that it can be bent double after twenty minutes immersion. But he makes a point of never letting scientific theories interfere with clinical observation, and with such high indorsement as that of Dr. Younger he intends to try it at the first opportunity.

DR. R. R. ANDREWS (to Dr. Younger). Is it a fact that

where there is slight decalcification there is more ready adhesion as claimed by recent French observers?

DR. YOUNGER replied that while the theory referred to was interesting *as a theory*, practically he thought it would prove a failure—that is, the partial decalcification of teeth to be implanted.

DR. G. V. I. BROWN, Duluth, Minn.: Considers the essentials in the treatment of pyrrhœa to be—

First, The thorough removal of all deposits, using an acid if necessary, to decalcify the inaccessible portions.

Second, Getting the gum to grow up around the tooth again.

As to the causes of the disease he does not think that the rheumatic diathesis theory has had sufficient confirmation to be accepted. It may, and often does, exist incidentally, but not as a *cause*. He considers that mal-occlusion is the most frequent cause. As the result of mal-occlusion the surrounding tissues are irritated and become hyperæmic, the tooth is elongated and irritation is increased, resulting in one of two things: either the *formation* of something or the *destruction* of something. He objects to the use of the word *cure*, as many cases that are *apparently cured* do not *stay* cured.

DR. WALKER does not think Dr. Talbot's argument against the lactic acid theory a sound one—viz.: That *all* the teeth would be equally affected. All the toes and finger-joints are not affected in gouty subjects; it may be only one big toe-joint or only one little finger, and in the same way it may be only one or two teeth. The evidences of this constitutional dyscrasy are very varied. In one it may affect the finger-joints, in another the brouchi, in another it takes the form of skin disease. In some it manifests itself in one form and in others very differently. He said: "In all the cases that have fallen under my observation since Dr. Pierce called attention to this view—I was too young when Dr. Pierce's paper was published for it to attract my attention—I have had but one case in which there were not other symptoms of lithemia. This was a young lady of twenty-four or five who was suffering from Rigg's disease due to faulty articulation, the upper lateral having been pushed out

of position by faulty occlusion through loss of the posterior teeth. The vital tissues did not follow up the tooth. There were no deposits, but there was a pus-pocket. I have been seeing this case for a year and a half. In many cases where there is no trace of uric acid in the urine, after failing in other methods of treatment the lithic acid treatment will effect a cure. Another point: By certain modes of living, going on a debauched indulgence in highly nitrogenous food, etc., a person may bring on such a condition of blood as to cause deposits upon the teeth; by change of habits, and possibly of climate, all trace of uric acid may subsequently be eliminated from the blood and from the urine, so that when, at a later period, treatment is had for Riggs' disease resulting from the deposits above mentioned, examination would fail to reveal any constitutional lithemia as cause for the deposits. But these will remain unchanged upon the teeth unless, mechanically removed, long after all traces of systemic lithemia may have been eradicated. When I undertake the treatment of a case I tell the patient that I can cure him if he will help me, but I must have his co-operation in diet and habits of living as well as in the care of the mouth prescribed. Constitutional treatment I find, from my experience in the treatment of the disease, to be essential in lithemic cases, but constitutional treatment without the removal of the deposits will not cure the disease. I remove the deposits with instruments as perfectly as possible. If inflammation and pus-formation persist I go for more deposit. If instruments do not find it I use trichloroacetic acid to dissolve those minute particles that defy instrumentation. I recall a case that I first had under treatment about four years ago, a lady. There were heavy deposits of serual calculus, with deep pockets reaching to the bifurcation of the roots—both upper and lower teeth—the gums were so inflamed that they were purple. I am satisfied that she would have lost her teeth within six months. There were no salivary deposits. I removed the deposits; requiring several sittings, and treated as usual. At the end of a month I found a little calculus here and there, but at the end of three months, and then six months, and then eight months more, there were no more de-

posits, no pus, and the gums were as healthy as previous to the attack.

Lithemic patients do not stand a cold climate well and Pass Christian is a favorite resort for this class of sufferers, so that I have occasion to see a great deal of it and to treat pyorrhœa for them. Cold weather favors the accumulation of lithates in the system, from arrest of perspiration, and they instinctively seek a warmer climate in winter. That is, perhaps, why so many of those who come to me for treatment of Riggs' disease are lithemic sufferers. I had a patient last winter, a lady from Montana. She stayed south much longer than she had intended to do because I said I could cure her, her own dentist having said it was impossible to save her teeth.

It required five sittings for the removal of the deposits. She had other marked lithemic symptoms, and in addition to my special treatment for pyorrhœa, or Riggs' disease, I put her on tartar lithemic to her very great benefit.

I will ask Dr. Talbot for an explanation of his use of the term *neurotics*. I do not find it in the dictionaries. What does he mean when he says that, "the children of neurotics are generally either neurotics or degenerates?"

DR. E. R. CARPENTER, Chicago: The most aggravated cases in my experience are those in which we are unable to find any deposits. The anterior teeth are very loose, with a relaxed condition of the gum-tissue. The deposits are a result and not the cause; pyorrhœa goes in advance of the deposits. From the relaxed condition of the tissues anything that might tend to deposit will be washed out by the buccal secretions and the teeth be found clean and nice but with the gum hanging off loose. Where there are deposits we are apt to leave a very thin layer, really beveling off the edges of the deposit. The officinal dilute sulphuric acid assists greatly in the removal, and does not act upon the tooth-tissue as it does upon the deposit. I have never expected to secure adhesion of the gum; the best I hope for is to get control of conditions, but I have to watch my cases and have these return for examination. I have never had the results in treatment that Dr. Younger claims to get from the use of lactic acid, though I have not used that agent.

DR. WALKER: When I speak of cure I do not mean to say that there is an absolute certainty that it will never return. I use the word cure in the sense that the physician does when he cures a lithemic skin disease or lithemic bronchitis. But if instructions are followed the disease can be cured.

DR. B. H. CATCHING: There are very few men who are entitled to have an opinion on such subjects. It is only those who have made scientific investigations that are entitled to an opinion. Mere clinical experience is not sufficient for a writing of this character. Dr. W. D. Miller, for instance, has the right to express an opinion as to the cause of caries, because of the scientific investigations he has made. I agree that we ought to call it Riggs' disease, for Dr. Riggs was the first one to really place it before the profession. I am glad to hear it called Riggs' disease, and I shall stick to that name. All cases that are called Riggs' disease are not entitled to that name.

DR. WALKER: I will ask Dr. Catching to tell us what Riggs' disease is?

DR. CATCHING: It will take some one else than Dr. Catching to tell you that!

DR. ANDREWS: These photographs of Dr. Talbot's are very fine. These dark spots mark newly formed-tissue which takes stain easily and shows very clearly the differentiation. I have not made a study of these diseased tissues myself, but from my general knowledge of the subject I judge that the photographs are most excellent.

DR. TALBOT (to close): The main point still is that we must find *the cause* as Dr. Miller has found the cause of caries. Until we know the cause our treatment must be at random. These photographs show that even after the gums have contracted and there can be no further ingress of pus germs, yet deep down, three-quarters of an inch below the suppuration line, there is still an invasion of inflammatory tissue, deep-seated disease in the periodontal membrane, and we don't know when it is cured. The most we can do is to prevent further intrusion of foreign substances.

As to the question, what is a neurotic? The subject of de-

generacy has lately come prominently to the front, and there is a difference of opinion as to the distinction between neurotics and degenerates. I might attempt to express it by saying that in the neurotic the nervous system is unstable. The degenerate goes back from a normal to a lower form—but they are really one and the same thing. A paper to appear in the next issue of the *International Journal* will give a fair idea of the meaning of the terms.

DR. T. P. HINMAN exhibited the models and photographs and explained his methods in modeling in a very remarkable case of restoration of lost tissues from the eyebrow down to, and including, the upper lip and maxilla, the restoration being effected by a hollow aluminum piece carrying the teeth of one-half of the maxilla, the upper portion forming the lower border of the socket of the lost eyeball.

DR. S. W. FOSTER, who had followed the case during the operations, expressed himself as delighted with the success achieved. The articulation obtained was something wonderful, while at a distance of twenty feet the artificial character of the restored portions of the face both bony and soft tissues having been destroyed from nose to ear and from eyelid to lower lip.

DR. TALBOT read a paper by Dr. W. X. Sudduth on “Modern Methods of Treating the Maxillary and other Sinuses of the Cranium.”

He said that empyema of the antrum, in a large proportion of cases, is due to infection from dental abscesses, or to extension of disease from nasal cavity. The most common causes of obstruction of the natural outlets are polypi and decomposed secretions. As the result of suppuration within the cavity of the antrum, the lining membrane becomes thickened and spongy and the caliber of the cavity is reduced in consequence. Neuralgias follow the course of the nerve supply causing sympathetic affections of the eye, generally unilateral. When the natural outlets are obstructed matter accumulates with consequent pressure. Necrosis of the walls of the antrum causes a discharge into the nasal cavity, or through absorption of the orbital plate matter infiltrates into the tissues about the eye. Pus may discharge

into the throat interfering with the general health, causing dyspepsia and poisoning the whole system.

The methods of establishing differential diagnosis between the nasal and dental sources were described minutely.

Trans-illumination has failed in the hands of the most expert specialists in actual practice.

In treatment he would prefer to treat through the septum rather than sacrifice a good tooth to treat from within the oral cavity; or, would trephine in the region of the canine fossa if the patient objects to a tube exposed in the face. If the latter method is selected, a trephine and flexible rubber catheter of the same caliber should be selected and placed in an antiseptic solution, the mouth being rinsed with borated soda or listerine. The first dressing may be introduced through the opening made by the trephine. A band should be cemented to the nearest tooth with a piping cemented to the band, which, to secure the tube, the rubber-tube should be three or three and a half inches long, and one half or three-fourths of an inch passed into the antrum, the free end being kept plugged with a soft wooden pin to prevent the entrance of saliva or air—sources of renewed infection. A bi-borate of soda solution is to be introduced through the tube into the antrum and allowed to flow out into the nasal cavity, carrying with it the pus from the antrum, the patient inclining the head forward, a freer opening being made into the nasal cavity if necessary. After the cavity is thus cleaned, 3 percent pyrozone should be introduced to disintegrate any remaining pus, completing the dressing with a bland antiseptic, as listerine, left in the cavity. This, and other cavities of the cranium, can be easily washed out in this manner by the patient, or by friends or family, and should be repeated two or three times a week. If any odor is perceptible after the first treatment, permanganate of potash may be substituted for the listerine, for a few days. Laterine, when the flow of pus is materially diminished, stimulating antiseptics may be used, as sozo-iodol and its compounds. In acute cases, sozo-iodol and bismuth; in sub-acute cases, sozo-iodol and mercury; in chronic cases, sozo-iodol and zinc. All solutions should be used warm.

In the discussion of this paper the Chairman spoke of the very great success in trans-illumination obtained by Dr. Cobb, of Boston, and attributes failure in the use of too small a lamp. Dr. C. uses 8-candle power, putting on and turning off the current as it gets too hot. In fifteen cases he showed very clearly the condition, the diseased antrum contrasting strangely with the other side.

DR. G. V. I. BROWN does not quite agree with Dr. Sudduth in regard to differential diagnosis, and does not like a tube projecting so far into the antrum, as the remedial agents can not wash all points in the antrum when it is thus introduced. Neither would he instruct the patient to leave any fluid in the antrum as its presence is liable to cause neuralgias. Good drainage is very essential.

DR. TALBOT questions whether any large proportion of diseased antri is due to diseased teeth. Other causes are: Nasal troubles, adenoid vegetation, mouth breathing irritation of the nasal membrane extending into the antrum, the severe storms of the Northwest, blizzards, etc., causing acute inflammation of the mucous membrane. The proper place for trephining is between the roots of the second bicuspid and the first permanent molar, but these cavities are frequently deformed, especially in degenerates, and are seldom found as portrayed by Gray. In some cases the antrum is entirely obliterated on one side, while the other side may be twice the normal size. Sometimes the nasal cavity extends very far to one side. He has seen two cases where the dentist had extracted the tooth and drilled the alveolus, penetrating the floor of the nose instead of entering the antrum. At that time he thought it was due to the ignorance of the operator, but he now recognizes that it was because of a not uncommon malformation. Often there are septæ reaching across the antrum forming two cavities, so that any treatment reaching one portion would fail to benefit the other. He does not think the antrum can be drained by the middle meatus of the nose, which is half way up the side of the wall. He doubts if even pyrozone would blow it all out. The suggestion of plugging the other end of the tube is a good one, as there is no part of the body so liable to communicate infection as the mouth.

DR. BROWN: And yet, in no part of the body will a wound heal so readily as in the mouth. We can make incisions, cut out portions, and the wound will heal without trouble, as it would not do in the hand or the arm. So long as the wound is open, and the secretions not pent up, we will not have infection in the oral cavity from the oral fluids.

THE CHAIR: A child instinctively puts its mouth to a wound to cure it; it is Nature's great healer.

DR. TALBOT: And animals also do the same thing.

DR. BROWN: When a tooth is extracted the vessels of the socket are all open to infection, and yet we seldom have any trouble. Granulation proceeds from the bottom, and it gets well without any attention. Nowhere else is it done with similar ease.

DR. WALKER: I have often noted, with surprise, this ready healing in the mouth. If the gum is scarified extensively, and the hand scratched even very slightly with the same instrument, the mouth will heal promptly but you may possibly lose the hand or the finger.

DR. G. V. I. BROWN, Duluth, Minn., read a paper on "The Disinfection of the Mouth as a Potent Factor in the Treatment of La Grippe." If physicians fully understood the necessity of disinfection of the mouth, it would be made as much a part of preliminary treatment as the administration of a cathartic, and this would also serve to bring dental and medical practice into correlation.

What is wanted is a plain statement of facts, of observation, and experience in relation to particular diseases. This is especially the case in regard to influenza (la grippe), a disease, of which the real nature is shrouded in mystery, the etiology comparatively unknown, and of which the complications and sequelæ form the most formidable part, due to secondary infection.

The diagnosis is not difficult; the treatment is mostly symptomatic; the prognosis is favorable except in cases of heart or pulmonary trouble, or with chronic-necrosed patients.

Discharges of pus in the oral cavity, as from abscessed teeth, carious and necrosed jaws, pyorrhœa alveolaris, aggravate the

symptoms, with danger of direct infection from the resorption of the waste products of toxic poisoning, and the passage of pus-germs through the alimentary canal ready to incite inflammation and catarrhal processes wherever lowered vitality offers the least resistance.

Over 90 percent of cases will be found to have some pathological condition, and yet medical literature says nothing about direct medication for the disinfection of the sulcus a portal of infection.

Not that la grippe is purely and simply the result of oral infection, but the secretions of the mouth offer the best culture-medium for its specific organism, and much benefit would be derived and serious complications avoided by the prompt, continued and thorough disinfection of the mouth, not only by sterilizing the secretions, but through the treatment and removal of diseased conditions.

What is true of la grippe is equally true of many other diseases, and far-reaching benefit would result from establishing the practice of mouth-disinfection as a part of the general treatment of disease.

This paper was highly commended, but passed without discussion owing to limited time.

A paper from Dr. H. W. Gillette on "Cataphoresis" was next read, and the Section then adjourned till the next annual meeting, in Philadelphia, the second Tuesday in June, 1897.

National Association of Dental Faculties.

The thirteenth annual meeting of the National Association of Dental Faculties was held at the Grand Union Hotel, Saratoga Springs, commencing August 1st, 1896.

The following colleges were represented :

Birmingham Dental College—T. M. Allen.

University of Denver, Dental Department—W. E. Griswold.

Columbian University, Dental Department—H. C. Thompson.

National University, Dental Department—J. Roland Walton.

Atlanta Dental College—Wm. Crenshaw.

Southern Medical College, Dental Department—Frank Holland.

Chicago College of Dental Surgery—T. W. Brophy and Louis Ottofy.

Northwestern College of Dental Surgery—L. L. Davis.

Northwestern University Dental School—Theo. Menges and Geo. H. Cushing.

Indiana Dental College—G. E. Hunt.

Louisville College of Dentistry—Francis Peabody.

Baltimore College of Dental Surgery—B. Holly Smith.

University of Maryland, Dental Department—F. J. S. Gorgas.

Boston Dental College—J. A. Follet.

Harvard University, Dental Department—Thos. Fillebrown.

University of Michigan, Dental Department—J. Taft.

Detroit College of Medicine, Dental Department—G. S. Shattuck.

University of Minnesota, College of Dentistry—Thos. E. Weeks.

Kansas City Dental College—J. D. Patterson.

Western Dental College—D. J. McMillen.

Missouri Dental College—A. H. Fuller.

University of Buffalo, Dental Department—W. C. Barrett.

New York College of Dentistry—Frank Abbott.

Cincinnati College of Dental Surgery—W. T. McLean.

Ohio College of Dental Surgery—H. A. Smith.

Cleveland University of Medicine and Surgery, Dental Department—S. B. Dewey.

Western Reserve University, Dental Department—H. L. Ambler.

Pennsylvania College of Dental Surgery—C. N. Peirce.

Philadelphia Dental College—T. C. Stellwagen and S. H. Guilford.

University of Pennsylvania, Dental Department—E. C. Kirk.

University of Tennessee, Dental Department—J. P. Gray.

Vanderbilt University, Dental Department—H. W. Morgan and W. H. Morgan.

University College of Medicine, Dental Department—L. M. Cowardin.

Royal College of Dental Surgeons of Ontario—J. B. Willmott.

The following colleges were elected to membership:

Howard University, Dental Department, Washington, D. C.—James B. Hodgkin.

Marion Sims College of Medicine, Dental Department, St. Louis, Mo.—J. H. Kennerly.

Dental Department of Tennessee Medical College, Knoxville, Tenn.—R. N. Kesterson.

The following applications for membership were reported favorably by the Executive Committee for final action next year :

University of Omaha, Dental Department, Omaha, Neb.; Ohio Medical University, Dental Department, Columbus, Ohio; Baltimore Medical College, Dental Department, Baltimore, Md.; Dental Department of Milwaukee Medical College, Milwaukee, Wisconsin.

The New York Dental School announced its intention to complete its application next year.

The report of the secretary stated that there were in the United States fifty-three institutions teaching dentistry or conferring the dental degree, as follows: Dental schools in active operation, forty-six; organized during the year, two; in course of organization, one; corporations conferring the dental degree, four. Of the dental colleges, thirty-six are now members of the association, eight had applications for membership pending, two had signified their intention of applying, and the two newly organized have announced in their catalogues their intention to comply with the rules of the association.

The report of the Committee on Schools, presented by its chairman, Dr. Follett, stated that reports had been received from thirty-five schools as to their equipment under the resolution adopted last year. These reports showed that the schools were well-provided with lecture-rooms, and, in most instances, with ample laboratory and dispensary accommodations, with sufficient and appropriate appliances. They indicate a broadening in the general course of instruction, as well as fuller courses in all departments. Several colleges have recently added courses in bacteriology and extended their work in histology and pathology in practical ways. During the year 1895-1896 the number of matriculates at the thirty-five colleges reporting was 5,532; graduates, 1,363.

Mr. Melville Dewey, Secretary of the Board of Regents of the University of New York, appeared before the association, by invitation of some of the members, and gave a masterly address on the needs of the movement for higher education in professional ranks. Incidentally, Mr. Dewey explained some of the details of the system pursued in New York, and stated that, greatly to the surprise of those in charge of the various professional educational institutions in the State, the number of students had steadily increased since the higher requirements had been put into force by the Board of Regents.

Among the more important legislation enacted by the association were the following :

REGULATING THE ADMISSION OF STUDENTS.

Preliminary Examination.

The following preliminary examination shall be required of students seeking admission to colleges of this association :

—— ——— HIGH SCHOOL.

—— ——— 189

To the Faculty of —— ———

M —— ——— desires to present ——self as a candidate for admission to the Course of Dentistry, —— ——

He has pursued in this school the branches against which numbers appear — the numbers being the standings upon a scale of 100. Our course requires five recitations or exercises weekly, in each branch. Our terms are ten weeks in length.

PRELIMINARY.

2 terms Othography, standing.	2 terms Grammar.
2 terms Reading, standing.	2 terms History U. S.
2 terms Writing.	—
2 terms Arithmetic.	14
2 terms Geography.	

These are required in all cases, and fourteen counts given for the same.

ELECTIVE.

3 terms University Algebra,	1 term Commercial Arithmetic.
through Quadratics.	2 terms Astronomy.
3 terms Geometry, plane and solid.	2 terms Geology.

2 terms Physiology.	2 terms Natural History.
2 terms Physical Geography.	1 term Political Economy.
1 term Botany, with analysis of forty Plants.	2 terms Drawing.
3 terms General History.	3 terms German.
3 terms Natural Philosophy.	3 terms Greek.
3 terms English Literature.	3 terms Latin Reader, Caesar.
2 terms Civil Government.	3 terms Cicero, four orations.
2 terms Rhetoric.	3 terms Virgil, six books.
2 terms History of England.	1 term Book-keeping.
3 terms American Literature.	3 terms French.
3 terms Chemistry.	2 terms Manual Training.

(After session of 1901-1902 U. S. History becomes elective, and entitles to 2 credits.)

FOR THE SESSION OF 1897-98.

Preliminary	14 counts.
Elective ..	18 counts.
Total	32

FOR THE SESSION OF 1898-99, 1899-1900.

Preliminary	14 counts.
Elective	27 counts.
Total	41

FOR THE SESSION OF 1900-01.

Preliminary	14 counts.
Elective	36 counts.
Total	50

For the session 1901-1902 and thereafter no preliminary credits; forty-eight credits from the studies classed as elective.

When the text-book mentioned has not been completed, the exact amount of work done should be stated.

The candidate above named is recommended as of good moral character, studious habits, and, judging from the past records, able to carry forward the work of a dental college course.

The rules for the admission of students to take effect with the session of 1897-8.

— — Principal.

ADMISSION TO ADVANCED GRADES ON CERTIFICATES.

The colleges of this Association may receive into the advanced grades of Juniors and Seniors only such students as hold certificates of having passed examinations in the studies of the Freshman or Junior grades respectively, such certificates to be pledged to any college of the Association to whom the holders may apply that the requisite number of terms have been spent in the institutions by which the certificates were issued.

INTERMEDIATE CERTIFICATE.

Place, _____. Date, _____.

This certifies that _____ has been a member of the _____ class in the _____ during the term of _____. He was examined at the close of the term in the required studies, as stated herein, and is enter the

Freshman Year.

Junior Year.

[List of Studies.]

[List of Studies.]

This certificate shall, by correspondence, be verified by the dean of the college by which it was issued. Without such certificate no student shall be received by any college of this Association for admission to the advanced grade, except on such conditions as would have been imposed by the original school, and these to be ascertained by conference with the school whence he came.

LIMITING THE TIME FOR THE RECEPTION OF STUDENTS.

No member of this Association shall give credit for a full course to students admitted later than ten days after the opening day of the session, as published in the announcement.

In case one is prevented by sickness, properly certified by a reputable practicing physician, from complying with the foregoing rule, the time of admission shall not be later than twenty days from the opening day.

In cases where a regularly matriculated student, on account of illness, financial conditions, or other sufficient causes, abandons his studies for a time, he may re-enter his college at the same or subsequent session, or where, under similar circumstances, he may

desire to enter another college, then, with the consent of both deans, he may be transferred; but in neither case shall he receive credit for a full year unless he has attended not less than seventy-five percent (75 p. c.) of a six months' course of lectures.

ATTENDANCE, EXAMINATIONS.

Attendance upon three full courses, of not less than six months each, in separate academic years, shall be required before examination for graduation. The year shall be understood to commence August 1st, and end the following July 31st.

Beginning with the session of 1896-97, the examinations conducted by the colleges of this Association shall be in the English language only.

A student who is suspended or expelled for cause from any college of this Association shall not be received by any other college during that current session. In case the action of the first college is expulsion, the student shall not be given credit at any time for the course from which he was expelled. Any college suspending any student shall at once notify all other members of this Association of its action.

APPLICATIONS FOR MEMBERSHIP.

Applications for membership in this Association shall be made in writing, favorably indorsed by the Faculties of two or more colleges of the Association, and the Board of Dental Examiners of the State in which it is located.

Such application shall then be referred to a special committee of three, which shall be appointed by the chair upon each application. The duty of this committee shall be to visit the school applying during its session, personally examine its facilities for teaching, methods of instruction, and efficiency of the Faculty, and report to the Executive Committee, which report shall, if favorable, be acted upon.

Each application shall be accompanied by a sum of money sufficient to defray the expenses of the special committee.

The constitution was so amended that hereafter it will require a two-thirds vote instead of a majority to elect new members.

The following resolution, offered by Dr. Peirce, was, on motion, adopted:

WHEREAS, In view of various reports frequently being circulated derogatory to the character of certain schools without any one being willing to prefer charges sustaining such statements;

Resolved, That the Executive Committee be and is hereby authorized to exercise full power to investigate all such innuendoes or charges by visiting the school or schools, or authorize some one to perform this duty; summoning witnesses, etc., in order that all such statements shall be sustained or proven false.

Resolved, That a sum to be determined by the officers—President, Secretary, and Treasurer—be and is hereby appropriated for the purpose of paying expenses essential to the carrying out of the provisions of the above resolutions.

The following communication from the National Association of Dental Examiners was read, and, on motion, adopted:

Resolved, That this Association requests the National Association of Dental Faculties to enact a rule prohibiting colleges from receiving beneficiary students recommended by State Boards and Associations.

The following, offered by Dr. Abbott, was adopted:

Resolved, That the committee of three appointed by the chair to report on applications for membership shall determine and report to this Association, at its next meeting, the minimum requirements of such colleges as desire to become members of this Association, as to length of course, plant, equipment, facilities for teaching, and the number and efficiency of its Faculty.

DR. BROPHY offered the following, which was adopted:

Resolved, That a graduate of a recognized dental college, who applies to a college of this Association for the degree of Doctor Dental Surgery or Doctor of Dental Medicine, shall complete one full course of instruction in said college and comply with all other requirements of the senior class.

The following lie over till next year for final action:

Offered by Dr. Barrett:

Resolved, That after the regular session of 1897-98 the annual college term for the members of this Association shall be seven full months.

Resolved, That it is advisable that the National Association of

Dental Faculties in future meet in connection with the National School of Dental Technics, at a time of year when the colleges are in session, and before the time for the issuance of the annual catalogues.

A committee, consisting of Drs. Patterson, H. W. Morgan, and Kirk, appointed to consider the advisability of adopting the academic cap and gown for commencement-day, reported in favor of adopting the intercollegiate system, and in favor of lilac as the distinguishing color for dental schools. Laid over till next year.

The following were elected officers for the ensuing year: J. P. Gray, Nashville, Tenn., President; Truman W. Brophy, Chicago, Vice-President; Louis Ottofy, Chicago, Secretary; Henry W. Morgan, Nashville, Tenn., Treasurer; J. Taft, Cincinnati, Thos. Fillebrown, Boston, and B. Holly Smith, Baltimore, Md., Executive Committee; H. A. Smith, Cincinnati, Thomas E. Weeks, Minneapolis, and J. D. Patterson, Kansas City, Mo., *ad interim* committee.

The newly-elected officers were installed, and the President announced the standing committees, as follows: S. H. Guilford, Philadelphia, Pa.; J. B. Wilmot, Toronto, Canada; Theodore Menges, Chicago, Ill.; L. M. Cowardin, Richmond, Va., and James Truman, Philadelphia, Pa., Committee on Text-books; J. A. Follett, Boston, Mass.; G. E. Hunt, Indianapolis, Ind.; C. N. Peirce, Philadelphia, Pa.; A. H. Fuller, St. Louis, Mo., and D. J. McMillen, Kansas City, Mo., Committee on Schools.

Adjourned.

SELECTIONS.

Kerosene in Surgery.

A. Shirman, has observed that in treating wounds and ulcers of the trunk and of the limbs, among the poorer classes, by the usual antiseptic methods, recovery usually progresses very slowly on account of the fact that time and circumstances do not allow the patient to apply these preparations as often as necessary.

For this reason the author determined to try some other sub-

stance as an antiseptic, and it occurred to him to try kerosene in these cases.

For this purpose, in cases of ulcers, especially atonic and indolent ones, he smeared them with commercial kerosene, either pure or diluted (from 33 to 50 percent) with alcohol, with a small camel's hair brush or with a piece of gauze soaked in the solution. Shortly after the application a burning sensation was felt, but it soon passed away.

The appearance and character of the ulcers showed a change for the better; the discharge gradually diminished, and in the course of from two to four weeks the rapidly granulating surface formed a scar without any contraction of the surrounding parts.

The advantages of the use of kerosene for such cases, Dr. Shirman summarizes as follows: It produces healing in a comparatively brief space of time; it is much more economical and is easily obtained; it does not produce constitutional poisoning through the wound by absorption as other antiseptics sometimes do; it has not the intolerable smell of some of the others which are now in use; and the formation of a cicatrix on the ulcers proceeds rapidly. The author has never found the wound to be complicated with any erysipelatous process. Kerosene having a local irritating action on the wound undoubtedly possesses also disinfecting properties for the remote surface as well as for the adjacent surface around the wound. This is of great value, for actual facts show that persons residing in the kerosene oil districts are protected against ailments of an epidemic character—such as cholera, etc.—*N. Y. Med. Journal*.

Digestible Food.

One of the biggest mistakes about food which people make, says the *London Hospital*, is to forget that the true value of food to anybody is in the digestibility. Half a pound of cheese is vastly more nourishing, as regards its mere components, than half a pound of beef, but while the beef will be easily digested, and thus be of vast service to us, the cheese is put out of court altogether for ordinary folks by reason of its indigestibility.—*N. Y. Med. Times*.

ACCORDING to recent experiments described in *The Medical Record* each pint of air breathed by an adult contains about 15,000 microbes. In some places the number is as high as a million, but the average city number is about as stated. This microbe-laden air is taken into the air-passages, and when it is thrown out it is quite sterile. The air has further been found to be sterile in the naso-pharyngeal cavity. The inference is that the nose is a most powerful microbe-destroyer, and this fact shows also how important it is to draw the air through the nasal passages.

Asbestos as a Surgical Dressing.

Dr. E. O'N. Kane, of Kane, Pa., recommends asbestos as a practical and useful substance for surgical dressings. These dressings, he says, may be carried in any parcel, paper bag, or hand-satchel, may be handled by dirty hands, spattered by blood or any sort of filth, and yet can be rendered absolutely aseptic in less than two minutes by tossing them upon the coals or into the blaze of an ordinary kitchen stove. After having completed an operation, and just before he is ready to apply the dressings, they are thrust into the coals or flame of the nearest stove. The same dressings can be used, if necessary, though here it is advisable to wash off some of the discharges before the dressings are burned. Repeated burnings seem to injure the quality of the material somewhat. The form of asbestos most used is the asbestos fibre, which is as soft as silk floss, and its absorbent qualities are greater than those of absorbent cotton. Asbestos wicking, packing, and cording are adapted for drainage tubes.—*Medical Record*.

In persistent facial neuralgia give ten grains of muriate of ammonia and 1-120 of a grain of atropia every two or three hours.

A good local anæsthetic for spraying abscesses before lancing is made of half drachm of chloroform in an ounce of ether.

Chloral is a specific wherever a powerful and immediate relaxing effect is needed. It acts beautifully in the acute spasms of childhood.

Capacity of Women for Bearing Pain.

It is obviously a somewhat difficult matter to estimate the degree of resistance to painful impressions in man and woman respectively, or even between individuals of the same sex. Some measure of success has, it is true, attended attempts to express in figures comparative sensitiveness to tactile impression and in respect to the auditory and olfactory functions. There, however, we are dealing with tangible stimuli, which can themselves be titrated, so to speak, before being employed. It is quite otherwise with the subjective phenomenon which we call pain. Pain, indeed, is a reaction which varies more with the idiosyncrasy of the individual than with the nature or intensity of the excitant. The sensations associated with the violent abduction of a tooth are always disagreeable, but it is difficult to resist the conclusion that, other things being the same, the intensity of the pain varies within very wide limits. For purposes of comparison we are obliged to assume what we may call a standard intensity of pain, and, proceeding on that basis, M. J. Finot feels justified in asserting that women are more resistant than men. When under the stimulus of emulation, women, he tells us, are capable of developing a will power far in excess of that attainable by her hardier partner in the "struggle for life." For instance, in experiments with the electric current, the female subjects were able to bear as much as 230 volts, compared with forty or fifty volts, which was all the men would put up with. According to this observer, this capacity of resistance to pain constitutes a valuable attribute in the struggle for life. Woman's intelligence being approximately equal to that of man this extraordinary will-power confers an indisputable superiority over man. The author clinches his argument by pointing out, on biological data, that femininity of sex is the result of a superabundance of vitality, of a richness of nutrition, rather than of any arrest of development, as we have hitherto complacently supposed. The caterpillars of moths and butterflies become of the male sex when subjected to starvation *regime*, and in poor and miserable countries, the preponderance of boys over girls is very

marked, just as twins, who have to compete for the maternal nourishment, and are comparatively less favorably situated from a nutritive point of view, are, he says, usually of the male sex. Everywhere and always, concludes M. Finot, nature shows a preference for the female sex, a preference, it may be added, which men have universally endorsed. The ladies ought to vote a medal to M. Finot for his contribution to their emancipation on logical and biological grounds.—*Med. Press and Circular*.

Quantity of Food.

To the question which has been frequently asked, What quantity of food is best adapted for preservation of health? no satisfactory answer can be given, without a reference to the habits, occupation, and age of each individual, the degree of health he enjoys, as well as the season of the year and other circumstances. As a general rule, it will be found that those who exercise in the open air, or follow laborious occupations, will demand a larger amount of food than the indolent or the sedentary. Young persons, also, require more than those in advanced years, and the inhabitants of cold more than those of warm climates. We say this is a general rule, for very many exceptions are to be found in each of the particulars. Thus, we not infrequently find that one individual requires more food to support his system than another of the same frame of body and trade, and who partakes of the same degree of exercise. In fact, one person will support his strength, or even become robust, upon the same quantity of food, which will occasion in another debility and emaciation.

If we refer to the brute creation, which is guided in this respect by an instinct which but rarely errs, we find that one horse requires more food than another of similar age and size, and with the same degree of exercise; and if his accustomed quantity be diminished he will become thin and spiritless. This is true, also, in respect to other animals.

Every person arrived at the age of maturity, or even before, should be able to judge for himself as to the quantity of food

proper for each meal, as well as to the frequency with which it should be repeated during the day. Few appear, however, to be aware of the important fact that the body is nourished, not in proportion to the amount, or even the nutritious qualities of the food which is consumed, but to the quality which the stomach actually digests. All beyond this disorders the stomach; and if the excess be frequently indulged in, the latter becomes finally incapable of converting into nutriment even a sufficiency for a support of the system. Most persons act as though the strength, vigor, and health of the body rise in proportion to the load of food they are capable of forcing daily in the stomach; and hence, overfeeding is the common error, at least in our own country. A slight deficiency of food is, however, far less injurious than too great an amount. The old maxim, "If health is your object, rise from the table before your appetite is sated," is founded in truth, and though the epicure will sneer at it, yet were he wisely to adhere to it he would save himself from many a gloomy hour of pain and suffering.

When the stomach is not laboring under disease, and the individual is otherwise in health, the natural appetite is one of the very best guides—the only one, indeed, as to the time for eating, as well as to the quantity of food. Whenever such appetite exists, wholesome food may and ought to be taken; we should cease from eating the moment it is satisfied.

The eccentric author of *Emillius* makes the following very judicious remarks in reference to the diet of children:

"Whatever regimen you prescribe for children, provided you only accustom them to plain and simple food, you may let them eat, run, and play as much as they please, and you may be sure that they will never eat too much, or be troubled with indigestion. But if you starve them half the day, and if they find means to escape your observation, they will make themselves amends, and eat till they are sick.

"Our appetite is only unreasonable; because we choose to regulate it by other laws than those of nature. Always laying down arbitrary rules, governing, prescribing, adding, retrenching, we never do anything without the scales in our hands; and this

balance is formed according to the measure of our fancies and not according to that of our stomachs."

The foregoing remark will equally apply to the adult as well as to the child. It is important, however, that "the balance" of the stomach be not rendered untrue by the acts of cookery—in other words, that an artificial appetite be not created by a variety of luxurious dishes—by sauces, condiments and wine.

It is surprising how often the stomach, within a very short space of time, may be artificially excited to a renewed desire for food. The man, however, who eats under such circumstances, must not be surprised at his uncomfortable feelings and frequent ailments. He has scarcely more right to expect health and long life than the individual who would attempt to nourish himself with poison.—*Dietetic and Hygienic Gazette*.

The Nerves of Taste.

L. von Frankl-Hochwart (*Wiener klin. Wochenschrift*) says the lingual nerve supplies fibres for the sense of taste to the anterior two-thirds of the tongue; these pass entirely or for the greater part into the chorda tympani. Clinical observation and processes situated at the base of the brain proves that these fibers enter the fifth nerve; resection of the Gasserian ganglion very often causes ageusia in the anterior portion of the tongue. It is not known whether these fibers of taste are to be found in the second or third branch of the fifth nerve, and the mode of connection with the facial and chorda tympani is unknown. The glosso-pharyngeus is generally recognized as the nerve of taste to the posterior third of the tongue. In some individuals, however, total destruction of the trigeminal nerve by basal growths, trauma or resection, does not interfere with the sense of taste, and probably the glosso-pharyngeus supplies in these cases the entire tongue with taste fibers. Although repeated clinical observation of cases in which the ninth nerve was destroyed has shown alteration of taste only at the posterior part of the tongue, Popl, in his case of compression of the left glosso-pharyngeus by an aneurism, as de-

monstrated by the autopsy, without involvement of the fifth, was able to observe considerable disturbance of taste in the anterior part of the tongue as well as total ageusia over the left posterior portion.—*International Med. Magazine.*

EDITORIAL.

American Dental Association.

The annual meeting of this body was held at Saratoga, N. Y., on the first Tuesday of August, 1896. There was about the usual number in attendance, though many familiar faces were absent, but a goodly number was present that would have been absent had the meeting been held in the West or South. When the meeting is held three or four times in succession in the far East, it becomes somewhat monotonous, still it may be all for the best, and come to think of it, we rather think it is.

There was much good work done at Saratoga, some most excellent papers were read, the discussions were good, but not as extensive as they have been at some other times. A most excellent spirit prevailed throughout. There was nothing to mar the harmony and social spirit of the occasion.

The American Dental Association is doing a vast amount of good, notwithstanding the criticisms that have so freely been indulged at times. It is the representative body of the profession of this country. It has been the agency that has set the pace for the progress of dentistry; no other dental organization in this country is so free from trammel. It is entirely free to do what ought to be done; it has done more to encourage and foster the formation of State and local societies than any other influence; it has had its hand on the educational system of the dental profession, and in such a way as to stimulate marked advance, and this, too, by such means as to avoid friction or jealousies. While the educational work has been, in detail, carried on by those especially engaged in that work, it has all the while felt the guid-

ing hand of the American Dental Association. Legislation is a subject that has often been considered by this central body, and in such a way as to have a salutary influence. While the carrying out of the provisions of the various State laws regulating the practice of dentistry is in the hands of the various State Examining Boards, together with the National Board of Dental Examiners, the consideration of the subject at large is in the hands of this representative body. This reference to these lines of work indicates most clearly the importance and value of the American Dental Association as a guiding influence for the dental profession. But this is not all; its ability to present and give direction to scientific work can not be estimated, such has been and is being done in this direction, but more will be done in the future. Now, in view of these things it is proper to ask: Ought not the American Dental Association to have a far larger support by the profession at large than it has as yet received? Let every one answer this question for himself, and then promptly act upon his convictions in the matter; then let there be a meeting at Old Point Comfort next year in numbers and earnestness commensurate with the need and importance of the occasion. Let every body come to the wedding, having on the wedding-garment and his lamp filled and well trimmed.

National Association of Dental Faculties.

This body held its annual meeting at Saratoga, N. Y., beginning August 1st, 1896, in the hall at the Grand Union Hotel. The attendance was large, almost every college having representation in the association had its delegate present. There was quite a number of applications for membership, four of which were reported upon favorably by the Executive Committee, and will be presented for final action at the next meeting. Several subjects came up for consideration, the discussion of which, and the final action had, clearly indicated marked progress. The importance of better preliminary attainments on the part of students generally, elicited much discussion, the drift of

which indicated clearly the growing desire for advancement in this respect. There was also manifested a desire to extend the curriculum. The extension of the time of the course, which met with considerable opposition two or three years ago, had now, seemingly, the acquiescence of all, and the same may be said in regard to the extension of time for graduation from two to three years. Doubtless, in the near future, there will be a readiness for further attainments in this respect. The reports made upon the schools, gave the number in attendance at thirty-five colleges, during the last term at 5,532, and the graduates for the same time 1,363. The figures elicited a good deal of interest and some anxiety, on the part of a few at least, lest the profession in the near future should become crowded. Certainly there is no occasion for fear or anxiety in this direction up to the present time, and especially when we consider that quite a goodly percent of those who press themselves through the course have far from an adequate preparation for their professional duties, and will, many of them, at least, drop out of practice in a little while.

With a view of determining more fully than heretofore the true character and status of colleges applying for membership in this association, a special committee was appointed whose duty it shall be to visit any school applying for membership, during its session, personally examine its facilities for teaching, methods of instruction and efficiency of the faculty, and report to the Executive Committee, which report shall, if favorable, be acted upon.

This action, if well carried out, will be of great value to the Association, and enable it to act more intelligently than has been possible under the former method; it will also serve as a stimulus to all colleges seeking membership in the body.

With a view to purifying the educational atmosphere, the following action was had:

“WHEREAS, In view of the various reports being circulated derogatory to the character of certain schools without any one being willing to prefer charges sustaining such statements;

“*Resolved*, That the Executive Committee be, and is hereby authorized to exercise full power to investigate all such innu-

does or charges, by visiting the school or schools, or authorize some one to perform this duty, summoning witnesses, etc., in order that all such statements shall be sustained or proven false."

This action will have a tendency to greater caution in regard to rash and, often unfounded, statements that are indulged too often, and that without any real grounds; it will also, in some degree at least, have a wholesome influence upon the colleges.

Upon the whole, we regard this as one of the most profitable meetings this body has ever held. It is to be hoped that each year may see an equal or greater advance.

Ohio State Dental Society.

The annual meeting of this society will be held in Columbus, on Tuesday, December 1, 1896. It is very desirable that there be a large attendance, and it is to be hoped that there will be a large addition to the membership. In a State as large as Ohio, and with about one thousand dentists, and with the history that the profession in the State has, there ought, certainly, to be half of that number in the society. Why are they not there? Who can tell? Can any of the habitual absentees frame an excuse that is satisfactory to themselves? Let every one try it. Sometimes sickness of one's self, or his family, may be a valid excuse for absence, but a very small percent of the whole will suffice for this class of absentees. Another excuse is, "I never learn anything at these meetings." Well, there may be sometimes grounds for this excuse; one may be so ignorant and dull as not to be able to learn any thing; well, of course, such a one should be excused. Another says, if not in words, by his manner, that he "knows about all that is worth knowing of professional matters." Well, that usually means that he has a small capacity and is not able to hold much, and it is already full. Well, that being true, he might be excused, and especially if he was not able to give up any thing he has; but, then, might not

some one pump something out of him even if it should be but air. Well, this variety of dentist is not very numerous, indeed, is rather rare, and may, without much loss, be excused.

Another says, "Well, I can not really afford the loss of so much time and money."

Well, dear sir, you can not afford to be absent, even if you have to walk to the meeting and carry your lunch-basket. Just think what you will miss! In the first place, you will lose the acquaintance of many of your professional brethren, and the social influence of such acquaintance; a knowledge of our truly professional brothers is an acquisition not to be lightly esteemed—it is one of the elements of success. And further, no aspiring dentist ever attends a dental meeting that he does not gain something, and usually much of practical matters and of of scientific as well, if he brings something to carry it in. So come on, brother, and bring the biggest basket you have, and you need never go away empty; and it will be all the better if you bring something in the basket. We are sometimes surprised to find how much we can help those whom we have supposed to be more favored than ourselves in attainment, and, indeed, it must be remembered that many a time our efforts are most helpful when we think but little of them. So let the weak help the strong.

Another class, which is too common, consists of those who have no care or interest in their profession outside of their personal affairs; they have not learned that they can be helped or benefited by association with their fellows; to such we would suggest—you had better think over this subject seriously, and see if you have not been self-deceived; note the fact that those who have any good degree of attainments and desirable standing in the profession, and with those outside, too, are those who have been active in association work. Think over these things, and then act upon the convictions you may have. Let there be a great outpouring of the dentists of Ohio at the coming State Society meeting.

THE DENTAL REGISTER.

VOL. L.]

OCTOBER, 1896.

[No. 10.

PROCEEDINGS.

Proceedings of the Meeting of the Michigan State Dental Association, Grand Rapids, Mich., June 10, 11 and 12, 1896.

AFTERNOON SESSION.

The meeting was called to order by President House, and was opened with prayer by Dr. Morgan.

THE PRESIDENT: I regret that we have not a larger number present at the opening of this meeting. We generally have a fair representation at the beginning, but I suppose they will come later.

We will have an address of welcome from Mayor L. C. Stowe, and I take pleasure in introducing to you the Mayor of our city, the Honorable L. C. Stowe.

MAYOR STOWE: *Mr. President and Gentlemen of the Michigan State Dental Ass'n:* It affords me great pleasure, in behalf of the citizens of our city, to extend to you our cordial greeting and a most hearty welcome. You represent a profession that commands the respect of all classes of people, and while you all seem to have a kind, genial, sympathetic look in your faces, yet, I believe you are the cause of more intense pain than any class of people on the face of this globe. Notwithstanding all this, we are glad to have you with us.

The science of dentistry has made rapid advances—probably as much so as any of the other sciences. Mr. President, it has evolved from the old twisting, crushing, jaw-breaking turn-key

to the up-to-date "teeth pulled without pain," as I am informed by the advertisements I see in our daily papers.

Gentlemen, I am glad to see your society so well represented at this, the first, meeting, and I trust your convention will prove to be a profitable and an enjoyable one. I do not wish, gentlemen, to consume your time, which is valuable, and I will again bid you a hearty welcome.

THE PRESIDENT: I had expected that Dr. Taft would be here to respond to this address of welcome by Mayor Stowe. We received a dispatch that he missed his train. I can not tell whether it was intentional, Mr. Mayor, but we will have Professor Hoff respond to this address of welcome.

PROF. HOFF: *Mr. Mayor, President and Gentlemen of the Society:* I feel wholly inadequate to make any reasonable answer to the hearty welcome that we have just received. I hope, Mr. Mayor, that you will have no difficulty in policing this body; it certainly is not a very large one. I presume you have a larger police force in the city than we number here, but there will be more of us later on, and, perhaps, when you come to handle us you will think there are a great many more of us than there seems to be. We are very grateful to you for your kind invitation and the hospitality you have extended to us; we appreciate it and the beautiful city to which you have welcomed us—and this magnificent weather is certainly all that we can desire, and this beautiful place of meeting, it seems to me, is a most auspicious opening of our meeting.

While many of our members are not here, we have a representative number; we never can hope to get together all of our profession in any of our meetings, but we always get together a representative body. You see before you the representative dentists of the State; this body represents the dental profession in Michigan, so far as it is possible to represent it in an organized form, and we hope in this association to do whatever may be done by the profession in an organization, and not only bring the profession together, bring the individuals together in an association which shall accomplish more than we can hope to do in any individual capacity, but we hope by united effort to

accomplish a very great deal toward elevating our profession to that plane which will compel a recognition from the public of its value and its necessity. We realize that dentistry is a noble calling; we feel honored to be members of it. I have no doubt, if you were to canvas this body, or any body of dentists, you would find that a very large majority of them were satisfied with their calling in life. A great many think dentistry is a small and circumscribed occupation and that a man who enters it has a narrow view of life, but dental science, dental art, has opened up so much, that those who are best acquainted with it are surprised, at times, in looking at the opportunities we have, and the broadness of it; it is so broad that one who does not know of its capacity can have no very adequate idea of it. And so I, for one, feel that we have a right to be recognized by the citizens of our State; we represent the organization of the best element in our profession in this State and we claim the recognition of the best element in society and of the State, and all organized society everywhere, and we hope to merit that recognition by doing whatever we can for the benefit of the public in general; we are organized for that purpose; we are not a trust, that is, we are not organized for a selfish purpose or personal or professional aggrandizement; we are organized that we may stimulate each other to better work, to better effort, and by doing better work and putting forth better efforts we hope to serve the public to much better advantage, and it is with that in view that we are here to-day—not that we may personally get anything that shall be of any personal benefit to us, but that whatever we may gather up, whatever we may get here shall look to the ultimate good of the public and for the benefit of the public at large, and on these grounds we claim your recognition, and we accept your hospitality and shall cherish it and use it as we may have opportunity. We thank you for it.

It was moved and seconded that the calling of the roll be dispensed with until the evening session, which motion was carried.

The report of the Board of Directors was then read by the secretary, which report was accepted.

DR. J. A. ROBINSON was called upon to read his paper entitled "Then and Now."

(See August No. DENTAL REGISTER, page 396.)

THE PRESIDENT: Before we take up the next paper, we have with us to-day a gentleman, Dr. Adams, of Toronto, a member of the profession in Ontario, and a delegate to the National Association of Organized Charities. He has been interested, for some years, in the care of the teeth of the worthy poor, and to such an extent that he has been able to have established in the city of Toronto a dental health inspector, and if I understood him aright, a dental hospital where the worthy poor can have their teeth taken care of, and if it is the pleasure of this meeting I would be pleased to have Dr. Adams address us.

On motion of Dr. Hoff, Dr. Adams was requested to address the association, and responded as follows:

MR. PRESIDENT AND FELLOW-WORKERS: It affords me much pleasure to meet with you here to-day. I did not expect, when I came to your city, to have such a pleasure, but I met your president and he kindly asked me to speak to you for a few minutes on the work in which I am especially engaged.

SCHOOL-CHILDREN'S TEETH—THEIR UNIVERSALLY UNHEALTHY
AND NEGLECTED CONDITION.

In the closing years of this nineteenth century I am sure the public do not wish to be kept in ignorance of any danger that threatens the health and prospects of the rising generation.

I, therefore, wish to lay before you some facts which I have gathered from experience and personal observation and investigation in reference to the sad condition of children's permanent teeth of the present day. To my mind there is no subject that should be of more interest to you than this, whether viewed from a *parental, sanitary, educational, scientific or humane* standpoint; it is one that is thrilling with interest.

On this subject very little has been written, but the universally-unhealthy and neglected condition of children's teeth is such that silence on my part, knowing their condition as I do, would be criminal, for very few parents are aware of the wholesale sacrifice of their children's permanent teeth; as they suppose

that the teeth that are aching are their first teeth. But if they could see their condition, as I have, they would be alarmed and would, methinks, do something to prevent it.

For the past twenty-four years, in addition to caring for the teeth of the children in my regular practice, I have, with the aid of assistants, carried on Dental Hospital work among the children of the poor of Toronto, filling the teeth free for as many such children as I could gather in. Beside this, I have examined the teeth of large numbers of children in the public schools of the leading cities of Canada, and of some of the American city schools, including the largest German school on the continent. I have, furthermore, examined the teeth of the Indian tribes on the Georgian Bay, and of hundreds of children just out from England, besides a number from Syria, Russia and Japan. The examination of so many thousands of children, comprising those of different nationalities, has given me an exceptional opportunity of noting the condition and the change that is taking place in their teeth. I shall not here touch upon the cause, but shall confine myself to the condition, as I find it, and to the only present practical remedy.

I find that children's teeth decay at a much earlier period than they did formerly, and that the quality of the teeth is so much inferior, that unless they are filled as soon as they begin to decay, and while the cavities are small, they are soon past all hope of being saved. I am speaking of the permanent teeth—not only of the sixth-year molars, but also of the twelfth-year molars, bicuspid and superior incisors, which now very frequently begin to decay within a year or two after being erupted. I have examined the teeth of a large number of adults from fifty to seventy years of age who, like myself, have first-class sets of teeth, far better now than 95 percent of the children of to-day. In every city I visited I found the teeth of the children in the same neglected condition. Though almost every child had teeth requiring to be filled, there were not 5 percent who had any filling done. I found only one child whose teeth had been filled at the right time; the rest had been neglected until they were very far gone, and were hardly worth being filled, showing that

their parents were not systematic in attending to them, but only did so when the children had suffered very much. I did not find, in the schools, 3 percent of the children with as good teeth as I have at fifty-seven years of age.

In every kindergarten I examined I found many of the children with from two to four of their permanent teeth decayed, while mine, that I got at their age, are perfectly sound. I can not, by words, picture the exceedingly unhealthy condition of the teeth and mouths of a large percentage of the children in the various schools I examined. About from 1 to 5 percent of the children had sound sets of teeth; 15 percent had teeth fairly good, but some of them requiring to be filled; about 50 percent had many teeth decayed, some of which were so very badly decayed as to make it difficult to save them, as they would require to be treated for days or weeks, and that heathenish operation performed—the destroying of the nerve-pulp, an operation that should never be performed on a child—and yet, what can the dentist do when the parents bring their children in such a neglected condition? He has either to destroy the nerve or extract the permanent tooth, which operation is a still more cruel and barbarous thing to do. About 30 percent of the children I found in a still more neglected condition; the teeth and mouths of many of them were so disgusting that no dentist would think of working for them until their mouths had been disinfected. Many of the children under twelve years of age had from eight to twenty permanent teeth in various stages of decay; large numbers of them were dead teeth, mere shells, filled with decomposing food; other teeth were abscessed and the gums covered with vile, disgusting pus, which in many cases was very copious.

How shall I describe the furred condition of the tongue, and the foul gases emitted from the mouths of such children, which were veritable hot-beds for every species of bacteria, having all the elements necessary for germination—heat, moisture, decomposing food and teeth, together with the foul gases arising from them and the stomach! What better conditions could bacteria have? Our health authorities are very careful about having all bones and refuse removed from yards to prevent the air from

being polluted ; and yet school-children by the tens of thousands are compelled every day to bring their vile, dead, rotten *bones* to school to contaminate the air of the overcrowded rooms and spread disease among the children whose parents have been careful about their teeth. When sickness breaks out in the school (and it is often doing so) the health officer, at great expense, searches the buildings, drains and closets, to find the cause, not suspecting that it is often in the children themselves who have been weakened by slow poison.

I consider it a crime to compel teachers and children who take good care of their teeth to sit in the same room with such children. Remember, many of these were not poor children whose parents were not able to get their teeth filled, but children whose parents were in comfortable circumstances and were both willing and able to care for them, but, unfortunately, they were not aware that their children's teeth were in such a condition, but supposed that the teeth that were decaying were their first teeth and that Nature was helping to get rid of them by decay, in order that new teeth might take their place.

In every school I examined I found children whose permanent teeth had forced the roots of the deciduous teeth out through the alveolar process, and the rough, jagged points had lacerated and worn away the cheeks and lips, making a hole, in many cases, large enough to hold a walnut. Cancers often result (though not in children) from such laceration ! I found many of the children who, for months, had not been able to masticate solid food, and their pinched, half-starved faces told how they were being injured.

Mr. Levi Clark, Principal of one of our schools, said, at a public meeting in the interests of the children, that the result of the examination of the children's teeth in his school was a revelation to him, and that he could not see how it was possible for the children to attend school at all, with their teeth in such a shocking condition. But he said they were so ambitious to get their certificates that they would continue at their studies even while suffering great pain, and would come to school with their

faces swollen and covered with tears, but that at last they were compelled to go home.

The examination of 25,000 city school children, some in Canada and some in the United States, shows that one-half of them have suffered so much from abscessed teeth at night they could not sleep; one-fourth of the children were not able to attend school, some for days and many for weeks; and that out of these 25,000 children only 2,200 had teeth filled this year, though most of them belonged to the well-to-do class of our cities. There are more than 100,000 permanent teeth in the mouths of the school-children in Toronto alone that are going to destruction without any effort on the part of their parents to save them. Who can estimate the unnecessary loss sustained or the suffering endured by these children, and the millions of others on this continent who are in like condition? 'Tis a sum that can not be computed, for the effects will not end with the death of the children, for those who live long enough to marry will hand it down to their children, and the world will be populated with nervous dyspeptics!

I shall now point out some of the ways by which the children whose teeth have been neglected are injured, and then show how the bad condition of their teeth affects the health of the teachers and of the other children in the school whose teeth are kept in good condition. First, those neglected children suffer excruciating pain with toothache and neuralgia, often for weeks at a time, so that they can not eat, sleep, or study, and consequently become nervous and irritable. This prevents them from succeeding with their studies, and they soon fall behind their class and become discouraged, thus interfering very much with their education. In the second place, these children (not being able to properly masticate their food, which is consequently not thoroughly mixed with the saliva) bolt down their food in coarse chunks which irritate the stomach and bowels, causing indigestion, dyspepsia and diarrhoea. An eminent English doctor, writing on this subject, says that he considers that the rapid increase of intestinal troubles among the children in England, so often end-

ing in death, is attributable to the unhealthy condition of their teeth.

In the June number of an English quarterly magazine, published by C. Ash & Son, I found an interesting paper on the decay of the teeth in the national schools of Germany, written by Dr. C. Rose, of Freiburg, Baden, and read at a meeting held in Vienna, in which he shows that the children's teeth there also are deteriorating very fast, and that very little attention is given to their preservation. In one district, out of 6,300 school-children examined by him 98 percent had decayed permanent teeth, and yet out of that number only twenty-seven children had teeth filled. He further says that in various places which, during the last few years, had been heavily scourged with diphtheria epidemics, it struck him that the children, in their thirteenth and fourteenth years, possessed exceptionally good teeth in comparison with those of more tender years. This fact, he says, can only be explained in this way: That the children with bad teeth had, to a greater extent, succumbed to severe forms of diphtheria, inflammation of the lungs, and other infectious diseases. He says that Miller and others, it is known, have shown that most of the disease-bearing fungi appear, at times, in the unclean mouths of healthy people.

In his opinion, during an epidemic, the diphtheretic fungus will penetrate, for a time, to the mouths of nearly all the children in a school. He says: "In a clean, well-cared-for mouth, it does not find favorable conditions for its development, but grows vigorously in and near the roots of the teeth of a neglected mouth. The most effective sanitary measure in the treatment of diphtheria, during the disease and before, consists of the frequent thorough cleansing of the mouth and throat. A mouth with good teeth and tense gums can naturally be cleansed by rinsing, and much more easily than can one with diseased roots and loose gums. The most important preventive sanitary measure on the appearance of any epidemic is the most careful attention to the mouth."

His investigations reached the figures of over 13,000 school-children. "The results of these investigations," he says, "should

be sufficient to convince the German governments of the necessity of dental hygienic measures in the national schools. This is a duty the governments can not shirk."

I am pleased to be able to give you these extracts from his paper, as they so fully correspond with my own experience in this country, and add greater interest to this subject.

I have now given you the condition of the children's teeth, not only on this continent, but elsewhere, showing conclusively that this deterioration of children's teeth is universal. I leave it to you to judge what effect this condition of the children's teeth has on the health of the schools and the poor, and ask, Is it not time that something be done to prevent this fast increasing evil, instead of trying to relieve pain and heal the disease? The true sanitarian by anticipation goes before it saying "Halt, you can not enter here!" In England they are waking up in earnest and in many of their training schools are not only examining the teeth of the children, but are employing dentists to fill them. They will not receive applicants to either the civil or postal service who have decayed teeth, and are very strict in their examinations, for they say if their teeth are bad, their health will break down, and they will be placed too soon on the pension list. They have also established a dental hospital where the poor can have their teeth cared for.

It is one thing to diagnose a disease; the next is to provide and apply a remedy. The only remedy at present is to fill the teeth as soon as they commence to decay, long before the nerve pulp has become exposed or the tooth has ached and while it can be done at one sitting. But just here comes the great difficulty, which doubly increases the seriousness of the evil. The parents are not aware that their children's teeth that are aching are *permanent* teeth, until they take them to their dentist to have their teeth extracted, and then to their surprise find that they are permanent teeth, and past all hope of being saved. There is not more than one parent in a thousand who knows the difference between the temporary and permanent teeth. For many years I have found it difficult to get the children in the charitable homes to come to me in time to save their teeth. They would only come

when their teeth were aching and often they would be past saving, or if they could be saved it would take as much of my assistant's time to fill one bad tooth as it would to fill eight or ten if filled at the right time. So I adopted the plan of going to these schools twice a year to examine their teeth, and those whose teeth needed filling were then sent to me in the dental hospital.

This plan has been a great success in these schools, for now we never have any bad teeth to fill, nor any permanent teeth to extract, and the mouths of the children are clean and healthy. The contrast between the condition of the teeth of the children in these schools and those of the well-to-do schools of our city where this system has not been adopted, is sufficient, I am sure, to convince every fair-minded person that this system is not a fad, but an absolute necessity. Let me ask, why should not all parents in the cities and towns on this continent be informed of the condition of their children's teeth, in time to save them, and thus prevent this suffering?

I have given this subject years of careful study, and have failed to find any other remedy equal to this. I would therefore suggest, in the interest of our school-children, that in all our cities and towns a dental health inspector should be appointed whose duty it would be to examine the teeth of all the children, twice a year (except those children who brought a certificate from their family dentist saying their teeth were being attended to), and fill out reports to be taken home by the children to their parents stating the condition of their teeth, and advising them to send their children to their family dentist before their teeth were past saving. As there are large numbers of parents who can not pay much, and some who can not pay anything for having their children's teeth attended to, it will be necessary to establish a dental hospital in each of the towns and cities where such children can have their teeth filled and cared for at a nominal fee, simply enough charged to pay expenses. The whole of this work can be carried on with little or no expense to the city or State, as the dental health inspector can fill both office of inspector and also that of superintendent of the dental hospital; he can spare one or two hours every morning to make the examinations, or sufficient time

to go over the schools twice a year. This would be better than completing the examinations in a few weeks, for it would give the dentists and hospitals time to do the filling without being crowded, or the danger that some of the children would be forgotten who could not be attended to at once.

The examination will not interfere with the work of the school as it will not take more than thirty minutes to examine all the children in the room. I have examined one hundred and fifty children in an hour, and one hundred can be examined with ease. A large number of the school-children will go to their family dentists to be examined, which will lessen the work of the inspector and the number that will do so will yearly increase as they become educated, and thus all the school children, rich and poor alike, will be systematically examined twice a year. I am satisfied that by this plan the expense to the city, if any, will be very small, while the advantage to the rising generation will be incalculable, and will put an end to the present barbarous practice of wrenching out from the delicate jaws of so many children, the permanent teeth that God has given them to masticate their food and to beautify their features.

Sometime ago I sent out circulars to the leading cities in Canada and the United States, asking what these cities were doing for the preservation of the teeth of the children of the poor. The replies so far received, are that there is not anything being done except in the few cities where they have an infirmary connected with a dental college, and these infirmaries are not open all day, nor all the year; so that even in these cities there is not much work done for the children of the poor. In all of the other cities they are utterly neglected.

The dental hospital, that I have provided for the children of the poor of Toronto, is the only one of the kind, at present, on this continent. The poor have no idea of the value of their teeth and we are responsible for their education on this subject. In their interests and in the interests of their children after them, as well as in the interests of the school-children that have to sit day after day with them, they must be cared for and if necessary be compelled to have their teeth filled.

I shall just here point out the difference between a dental and a general hospital. The former, not having any resident or fever patients, will therefore not require so large or expensive buildings; nor to be placed at some distance from the resident portions of the city. It may be carried on in a rented building if need be, and in such part of the city where rent is not so high, and where it will be the most convenient to that class of the citizens whom it is intended to benefit. Again, it is different from the general hospital, inasmuch as it is not open to any person who is able to go to a dentist and pay the usual fee; for while the dental hospital should be self-sustained and not a burden on the taxpayer, it should not be made a money-making institution, competing with those persons who have to make their living by the practice of dentistry. It should only be open to two classes of citizens: (1) To those persons who, though able to pay something for the work they require, yet are not able to pay what a dentist having to keep up an expensive office, would necessarily have to charge. (2) To those persons, such as I have just described, who are not able to pay anything.

I shall not point out another difference between a dental and a general hospital, and which greatly helps in carrying out the work of the former. In the general hospital it cannot be known beforehand who the patients will be or what their ailments are, and therefore appointments cannot be made for them to come in when it will be most convenient for the hospital staff to attend to them; but in the dental hospital, as far as these children of whom I have been speaking and who are not able to pay are concerned, it is quite different. We know that they require attending to every six months, no guess-work, and therefore if we have their address, we can make appointments for them, just when they should be cared for, and when we can attend to them; thus, we can have the work of the hospital going on, as far as this class is concerned, in a steady, systematic manner—not a large number, more than can be attended to in one day, coming in; and then perhaps the chairs standing empty for days as has been my trying experience, with the additional dissatisfaction of knowing that the work we have done for them, at so much expense and

trouble, will be largely lost for our want of being able to keep track of these patients, as many of them do not return for a year or two, until the teeth we have filled have been destroyed by others that have in the meantime been neglected. The suffering of such children is terrible, as I know from what I have seen among them here in Toronto during the past twenty-four years—suffering such that no tongue can fully describe?

I have also given you some idea of the suffering endured and the loss sustained by the millions of poor children on this continent caused by the neglected condition of their teeth. Though we call this, not only a civilized, but a Christian land, yet the Christian, humane, and well-to-do people in it have, in no city on this continent provided a dental hospital for the preservation of the teeth of these poor children, nor have they tried to prevent this untold suffering. I do not know how it looks to others, but to me, having seen so much of this suffering, it seems an awful thing, that in the closing years of this nineteenth century, in which we boast of such great educational, sanitary and humane reforms, that millions of little human beings who had no choice whatever in coming into this world of suffering, should, for lack of that Christ-like care which Christians are expected to evince, be compelled, after months of suffering, to be subjected to that cruel and barbarous operation of having their permanent teeth, that God, their Heavenly Father has so kindly given them to masticate their food and to beautify their features, wrenched out of their delicate jaws.

We talk about the ignorance and cruelty of the heathen ; and and yet on this continent, claiming to be highly civilized, the cry of millions of suffering, fatherless and neglected poor children is going up to Heaven, night and day, one unceasing wail, while for want of knowing better, their parents take them “like lambs to the slaughter.” Let me ask: In what heathen country can you find so many parents offering up to their gods such a costly or cruel sacrifice as do the parents on this continent, in the sacrifice of their children’s teeth, health and beauty, on the altars of this hideous god, ignorance, whose constant cry is,—“Give!”

“ Give ! ” and yet is never satisfied, unless his altar is overflowing with the blood of these human victims ?

To sum up the whole subject and to save time, I shall just state some self-evident facts which it will not be necessary to bring evidence to prove :

1. Children whose teeth are neglected, in the way I have described, cannot eat, sleep, study, or play the same as those children whose teeth are kept in first-class condition ; therefore they become nervous and irritable.

2. If their food is not properly masticated and mixed with the saliva, but bolted down in coarse chunks, it will not be well digested and therefore not assimilated, the result being that though they have eaten the necessary amount of food, yet their systems are not built up.

3. The coarse food “ bolted down,” irritates the stomach and bowels, causing indigestion or dyspepsia and intestinal troubles. An eminent English doctor says that he considers that rapid increase of intestinal troubles among the children in England, which so often ends in death, is directly attributable to the unhealthy condition of their teeth.

4. Such children are a menace to the other children in the schools, because their systems being so susceptible to disease, they, unlike healthy children, cannot pass an open sewer without inhaling some virulent microbe germs, which find in their decayed teeth, inflamed gums, and generally run-down systems, a hot-bed where they can soon multiply by the millions ; and then becoming strong by numbers, they are able to attack the more healthy children in the school, and thus disease spreads, until the schools have to be closed.

5. Children whose teeth have been neglected, have not the same chance to recover from disease as those whose teeth are kept in a good, healthy condition ; not only because their systems are weaker to start with, but also because of the extra suffering they have to endure while sick, caused by toothache and neuralgia, which are sure to trouble them more when confined to bed, thus the temperature is greatly increased and the disease more complicated.

6. If the disease is contagious, a dentist will hardly care to venture into an isolated hospital to relieve the children lest he should convey the disease to his juvenile patients.

I shall now give you a few reasons why we, as a Christian people, cannot neglect the children of the poor:

1. Because we profess to believe God's Word which says, "He is the husband of the widow, and the father of the fatherless and that the poor are His peculiar care, and that whoso touches them touches the apple of his eye."

Moreover:

"Whoso stopped his ears at the cry of the poor, he also shall cry himself but shall not be heard." Pro., 21 ch., 13 ver. We say we believe in the Fatherhood of God, and the Brotherhood of Man; therefore we are compelled to show by our actions that we are consistent.

2. Because these children have sufferings enough to endure through life, without being compelled to bear any that can be foreseen and prevented.

3. Because their suffering from toothache and neuralgia which they endure so much at night is much greater than what is borne by the well-to-do, for they are compelled to lie in cold, comfortless homes which they cannot afford to keep warm at night which is the time when they suffer the most from neuralgia.

Looking at this subject from a selfish point of view, we cannot afford to neglect the children of the poor:

1. Because we do not know how soon we may have to change places with them, as riches often "take wings and fly away."

2. Because we cannot afford to let our children sit in the same room, side by side, with these neglected children and inhale the vile gases, constantly emanating from them, caused by their rotten teeth and the decomposing, undigested food in their stomachs which, passing from them, pollutes the air of the room, and is heated up and breathed over and over by our children, and it is always getting viler as the hours pass by.

3. Because we cannot afford to let our children drink out of the same cup these children have fouled with the poisonous pus

which is constantly exuding from the gums around their abscessed teeth and roots.

4. Neither can we allow our innocent little children to be exposed to the danger of chewing gum that has been crunched into the disgusting teeth of some of their playmates.

5. These children will soon be our employes, and we can not afford to have a nurse with our children who has had bad teeth, tasting their food and cooling it by blowing her vile breath over it. They may, perchance, be our servants, preparing our food, putting the spoons that they have just taken out of their mouths back again and again into the fruit and other dishes which they are preparing for us. Not a very pleasant thought for any person who has seen the condition of their teeth as I have.

6. These persons will not be as healthy as they would have been if they had been cared for when young, and, therefore, can not give us the same return for our money as they should have.

When, by school-inspection and dental-hospital provision, 90 percent of this loss and suffering can be prevented, and that without increasing the taxes of the citizens, I am sure that every person interested in the rising generation will be anxious to have this much-needed reform begun, in every city on this continent.

Now, in conclusion, I might say that during the past years I have been unable to reach the children of the poor, who were so scattered through the city, in time to save their teeth, so that though the expense of the hospital was going on, the work for which I was spending my time and money was not being accomplished.

I have now been forced to adopt the following plan, and one which, I think, will have to be adopted by every dental hospital that desires to reach the children of the poor in time to save their teeth. It is this: To advertise for the name and address of all poor women who have children depending on them for support. Having thus got the address of such, I send a visitor to see them. If they are not able to pay anything for dental services, but are willing to have their children's teeth systematically cared for twice a year at whatever time I may appoint for them, I then place their names on the free list and they will be cared for at

my expense. All other children coming into the hospital will be charged a small fee, according to their circumstances.

DR. FIELD, of Detroit: I regret that this paper has been read at this time when we have so few to hear it. It is certainly a very interesting and exhaustive paper, and one that appeals to me most heartily for its earnestness and for the understanding manner in which it has been written.

In my position as teacher, in the schools of Detroit, since I have been there, I have had more of an opportunity of seeing just such cases as the gentleman speaks of in his paper that we have listened to, and I understand thoroughly and can appreciate what he speaks of. I have been approached on this matter myself, and I am not certain but that I received the paper that this gentleman says he sent through Canada and the States, appealing to the dentists to take some part in it, but there is somewhat a matter of delicacy in dentists taking a position of that kind in the schools in the States, on account of so many of the families having their own private dentists. The question would be whether they would not feel that they were infringing upon something with which they had no business. I think it would be perfectly right, and there could be no wrong in it, yet, at the same time, a man might have some delicacy about doing it, but, at the same time, it meets with my hearty approval, and I think it is an excellent paper, and I am only sorry it has been read before so few as we have here to-day. I move a hearty vote of thanks to Dr. Adams for presenting it to us.

DR. J. C. PARKER, of Grand Rapids: I wish to add to the remarks of Dr. Field my hearty concurrence in what he says, and I think that nothing could be brought more opportunely before this association than this paper.

Dr. Field speaks of the delicacy we feel about it. I hardly think that would matter because we have no feeling of delicacy in regard to the compulsory examination of children in regard to vaccination, and as soon as this matter was thoroughly settled it would become a matter of course that the children in our schools would be examined twice a year as to the condition of

their teeth just as they are for vaccination. I would support the motion of Dr. Field.

The motion to tender Dr. Adams a vote of thanks was unanimously carried.

DR. ADAMS: I thank you, gentlemen, for your vote of thanks, and would like to say just a few words if you will give me a minute or two more. I think, probably, you did not just understand what I meant about the compulsory examination. What I proposed was this: not that all children should be examined systematically twice a year, but they would not necessarily be examined in the school at all; they could all go to their family dentist and there be examined; that the inspector, before going to a school would send word to the principal a couple of weeks beforehand saying that he would be there to examine the children's teeth in a couple of weeks, and the principal could then notify the children and all that wished to go to their family dentists could go; it would be compulsory, but the better class could go to their family dentists and the poor would be inspected, and all the well-to-do, of course, would go to their family dentists, so that all the inspector would have to do would be to examine the poor who would neglect to do so; so that it would not interfere with the rights of the well-to-do, or conflict with them at all.

MONTHLY DIGEST.

Prepared for the DENTAL REGISTER by MRS. J. M. WALKER.

PROSTHETICS.

The *actual* and the *ideal* is thus portrayed editorially in the consideration of *Specialists in Dentistry*.* “We have many very capable specialists in the mere mechanical details. They have attained the perfection of the jeweler's art, but they can go no further. * * The prosthetic specialist, instead of being merely the skillful mechanic, should make the facial character-

* International, April, 1895.

istics a study, have some knowledge of temperaments, study the rules of articulation, in a word, combine in his work all that is meant by the word artistic. He should be given the entire management of the insertion of artificial dentures, and thus bring it to such perfection that 'art will conceal art,' and not, as now, make it the most prominent feature of the work. In this way only, it seems to us, can this important specialty receive the attention it must ever demand."

In a series of five articles entitled

PORCELAIN DENTAL ART,*

DR. W. A. CAPON considers the advantages offered by porcelain work in overcoming deformities and defects in an artistic and acceptable manner, the work proving reliable and satisfactory under the most discouraging conditions for fillings, crowns and bridges.

The porcelain inlay, properly made and adjusted, is the least noticeable and the most artistic method of 'restoring the anterior teeth where large gold fillings are objectionably conspicuous, and the work long and tedious. This work is especially indicated in labial and large proximal cavities and contoured tips, broken centrals and losses by excessive abrasion.

By means of porcelain crowns the most difficult cases can be overcome, as the teeth can be carved to fit any peculiarity. They may be pin crowns, with or without collars, crowns with tubes to fit over posts screwed into the canals, or jacket crowns for teeth with living pulps. This crown can also be used where the roots, for any reason, are useless for the retention of pin crowns.

Illustrations in the March and April issues (*Items of Interest*), show the almost unlimited range of usefulness of the jacket crown in the restoration of the most difficult cases. All porcelain bridge-work requires a thorough knowledge of porcelain furnaces, the oxyhydrogen blow-pipe, etc. Its principal advantages lie in its strength, cleanliness, natural appearance, from the entire absence of gold, and also the low cost of production,

* Items of interests, Jan.-May, 1895.

often a mere fraction of the cost of a gold and porcelain section. It emerges from the furnace in a completely-finished condition, saving the hours of grinding and finishing required with gold and porcelain work.

GLASS INLAYS.

DR WM. TRUEMAN* gives some interesting paragraphs quoted from an old English work published in 1837, describing glass inlays for use in "cavities in the front of a cutting tooth," also caps of gold, platina or palladium, stamped up to fit, the fronts of the caps to be glazed, to be worn when the teeth are very much decayed, discolored, or have the enamel much injured or disfigured.

PORCELAIN WORK IN DENTISTRY.

DR. G. W. SCHWARTZ, in a paper read before the Odontographic Society, of Chicago,† reviews the use of porcelain work in dentistry, dating from its practical introduction as "continuous gum," by Dr. John Allen. He said, it is now one of the most æsthetic specialties, and also the best mechanical. It is not in more general use because of the lack of literature on the subject and the expense of furnace equipments, etc. Its great value lies in the fact that it so perfectly conceals the work done in conspicuous parts of the mouth. Dr. Schwartz prefers high-grade body (preferably Close's continuous gum body), because of the difficulty of getting the correct color with low fusing bodies. For crowns he prefers a porcelain veneer backed to a platinum cap. His method is given in detail for incisors and cuspids, also for bicuspid.

Porcelain bridges he makes, in most cases, with a saddle, the porcelain being baked to it. He concludes, "With the present facilities there is no reason why the progressive dentists should not do the porcelain work required in their practice.

LINING RUBBER PLATES WITH ALUMINUM.

DR. THOS. R. PIXTON‡ gives the following method. The cast must be thoroughly hard and dry. Using the round end of

* International Den. Jour., June, 1895.

† Dental Review, May, 1895.

‡ Items of Interest, May, 1895.

a tooth-brush handle as a tool, aluminum plate, 28 guage, properly annealed, is burnished to the cast, working always from the palate toward the top of the ridge. When well-burnished down without any folds, smooth the aluminum down over the ridge, a little at a time very evenly to prevent folds; this requires practice and patience. When a good fit is secured, with a sharp enamel chisel, held at an angle of about twenty-five degrees, go all around the edges and over the palate, turning up small hooks; cut around in the opposite direction forming a double hook. This will be found quite sufficient to hold the rubber. Anneal once more to be sure that it is sufficiently soft, set up the teeth with wax, and proceed as in making an ordinary rubber plate.

DR. DAVENPORT, at a meeting of the New York Odontological Society,* described a method by which he had very satisfactorily made over an old rubber plate which was no longer a good fit. The piece was a full upper denture of which the arrangement of the teeth and the articulation was very satisfactory. He cut out the entire center of the plate leaving only sufficient rubber to hold the teeth together. An impression of the mouth was taken and a cast made. The teeth, as mounted on the rubber of the old plate, were placed on the cast and waxed up and finished as usual. The result was very satisfactory.

GOLD CROWNS.†

DR. H. H. BOSWELL considers the habit of sticking gold crowns anywhere for a few dollars an insult to dental art. They are objectionable not only because of their detractive appearance, because of the sensitiveness of the tooth with living pulp induced by the cutting necessary to get an adaptation, and because of the cement used that mar the cervical margin, secreting fluids which decompose infecting the cement, the serum from the inflamed gum also decomposing with an odor foul beyond expression.

He advises all who do crown work to extract the tooth so as to shape and ferrule the root without overlapping margins, get-

* International Den. Jour. March, 1895.

† Cosmos, April, 1895.

ting a close metallic adaptation requiring very little cement. Use the porcelain face for all except those out of sight. Judiciously used, they are a blessing to mankind. In the hands of the unscrupulous or the unskilled, they are often a curse.

In the discussion of the subject by the Union Convention in Buffalo, Dr. W. W. Freeman spoke of the importance of the occlusion of a crown with the antagonizing natural teeth. To secure this the crown itself should be reduced with wheel or file. Grinding away the antagonizing natural tooth is apt to produce hypersensitiveness. He would not touch the natural teeth in this way under any circumstances.

DR. A. J. STEVENS* gives a few fundamental rules which should govern in placing gold crowns. The requisites are good judgment, good theory, proper tools, and mechanical and artistic skill. The natural crown should be reduced till a wire tightly twisted around the neck of the tooth will slip off without stretching. This gives the proper measure for the band. This, when soldered, should be trimmed to correspond to the gum contour and the edge beveled so that it can be burnished close to the tooth. Use 32 gage, gold plate, for the crown with cusps well reinforced. Fill the root with gutta-percha followed by gutta-percha point of proper size.

TEMPORARY STOPPING.

DR. J. FOSTER FLAGG†: The present compound of red gutta-percha base plate, white wax and precipitated chalk offers the lowest grade of heat-test, and is, therefore, especially indicated in near approach to the pulp. It is almost "non-leaky" and is, therefore, valuable in protecting the pulp from medicaments or chemicals, as in sensitive dentine treatment, and in the protection of arsenical applications when not exposed to attrition. It should always be used in the pink color as a reminder of its presence. When used near the pulp it should be warmed, and used with warmed instruments. Otherwise, if properly made, warm instruments will not be found necessary.

* Items of Interest, April, 1895.

† Items of Interest, May, 1895.

THE INFLUENCE OF PREGNANCY UPON DENTAL CARIES.

"Are the teeth more liable to become carious during pregnancy?" is the question asked by R. Peterson, M.D., in a paper read before the Grand Rapids Dental Society.* Answering the affirmative, and accepting the chemico-vital theory of caries as expounded by Dr. W. D. Miller, he considers the various theories advanced in explanation of the admitted increase of caries during pregnancy.

He fails to find any scientific foundation for the theory that the lime-salts are abstracted from the teeth to supply the demands of the fetus, the fact that the teeth are not supplied with any system of absorbents, being the most serious drawbacks to this theory; also the facts that more than sufficient lime-salts are ingested from ordinary food supplies, and that an excess of phosphates is found in the system. He attaches no value to the suggested neglect of hygienic care of the mouth, pregnancy occurring at an age when personal habits are well established, the usual bad taste in the mouth, etc., being an incentive to increased rather than lessened use of the tooth-brush, mouth-washes, etc. The most rational theory is that of changes in the character of the oral secretions, consequent upon changes in the blood and disturbance of nutrition. Increased acidity of the secretions would cause decalcification of the enamel, furnishing a more favorable soil for the development of micro-organisms. He quotes from an article by Dr. J. P. Kelly (*Journal Amer. Med. Association*), ascribing this condition of the blood to lithemia, showing a parallel, if not an identity, between the constitutional tendency produced by lithiasis and pregnancy, both originating in a grave disturbance of nutrition, preventing a similar modification of the blood, close resemblance in pathological changes, identical functional disturbances, and similar sequellæ.

The practical deduction is the indication of anti-lithemic treatment by the family physician as well as the local treatment of caries by the family dentist.

*Cosmos, March, 1895.

GOUTY PERICEMENTITIS.

In a paper read before the Academy of Stomatology,* Dr. E. T. Darby adds to the already long list of names expressing the different phases of what was long known as Riggs' Disease. He quotes from the papers of Drs. Pierce and Black on the character and function of the alveolo-cemental membrane and the morbid influences to which it is susceptible, especially in connection with uric-acidemia, and describes several cases of apparent abscesses on the roots of vital teeth, with gingival margin intact in the earlier attacks, pockets subsequently developing, with uremal calculus on the roots—cases difficult to account for except upon the theory of constitutional vice.

In the discussion Dr. M. L. Rhein spoke of the etiological classification of pyorrhœa alveolaris, as presented by him before the American Dental Association in the causes of pyorrhœa being as prolix as the diseases we are liable to meet with. He said that he had spent some time in visiting the medical wards of a large hospital in New York, examining the mouth of patients under treatment for various diseases, both acute and chronic, and in none of them found a healthy mucous membrane. From his observations he had reached the conclusion that we are liable to have a pyorrhœal condition follow any form of disease that will depress the nutritive action. The tissue that soonest feels the paucity of nutrition is that reached by the remotest capillaries of the circulatory system, namely: The peridental membrane and the gingival border along the roots. In the uric acid cases of abscess or pockets as described, Dr. Rhein invariably devitalizes the pulp of the afflicted teeth in view of the liability of similar deposits in the pulp itself, with the terrible neuralgic conditions met with from that cause.

DR. KIRK said that he still has under observation the cases described at a previous meeting (see REGISTER, page 238), and thinks that the mechanical resistance of the soft tissues determines whether the tophic abscess of gouty pericementitis shall break directly through the gum tissue and then heal up, or break

* Cosmos, and International, 1895.

along the side of the tooth leaving a fistulous track open at the gingival margin. He described a case in which tartar-lithine treatment and anti-gout regimen had arrested very rapid erosion, a case in which gold fillings on the labial surface of the anterior teeth, inserted six months previously, the cavities being the result of erosion, were "standing up like islands in the midst of the sea, the tooth-surface melted away from around them."

DR. H. H. BURCHARD ascribes the conditions to a constitutional vice leading to the retention of an excess of uric acid in the circulating fluids, which, acting as an irritant, stimulates abnormal cell-activity. The odontoblasts being thus stimulated to greater activity, the dentine becomes more dense, the pulp itself being sometimes obliterated.

Following the stimulative and the irritative stages would be the necrotic stage, necrosis, preciding the deposits. The necrotic tissues having an acid reaction the urates, insoluble in acids, are precipitated in this area.

DR. H. M. PRYOR described a case similar to one of those described by Dr. Darby.

DR. LOUIS JACK also described three cases, which, though dissimilar, illustrate the influence of gouty diathesis upon the pericemental membrane.

CHRONIC ALVEOLAR ABSCESS WITH COMPLICATIONS.*

DR. TRUMAN W. BROPHY, in this paper, considers the various complications which are met with in cases of chronic alveolar abscess, which fail to respond to the usual treatment of cleansing the canals, and the use of antiseptics and stimulants. This may be a denuded apex from which the pericementum has been destroyed by the process of suppuration, the carious bone surrounding the apex gradually breaking down. If a superior incisor the fistula may extend into the nasal passage; if an inferior, it may extend as low as the clavicle, or even to the nipple. If a superior bicuspid or molar, the pus may find its way into the nasal passage, or it may extend into the antrum or back to the tuberosity of the maxillary bone and into the spheroidal fissure. If the pus finds

* Review, April, 1896.

its way into the antrum of Highmore, filling the cavity and closing the natural opening from the antrum to the nasal passage, there may be an elevation of the floor of the orbit, through which the pus may penetrate and escape from the corner of the eye, deceiving even a skilled ophthalmologist. Again, it may find its way into the cancellated structure of the superior maxillary bone, either making a fistulous opening in the palate or elevating the periosteum, separating it from the bone and forming a large fluctuating mass beneath this membrane. The bone, thus deprived of its periosteum, is liable to become either carious or necrosed, according to the vitality of the individual.

Another complication is that of apparent pyorrhœa alveolaris, the pus discharging at the gingival margin, being, in reality, a discharge from an alveolar abscess. This may result from partial death of the pulp, as in the buccal roots of a superior molar, the living pulp in the anterior root keeping the patient in constant pain. In this case it may respond to tests for vitality and yet have the discharge of pus from an alveolar abscess. In such cases there is the liability of accumulation of pulp nodules in the vital tissue of one root, the other root having an abscess at the apex.

In conclusion he urged the importance of careful and thorough diagnosis: "Deformities, permanent physical infirmities, septicæmia and loss of life are so frequently due to the complications of chronic alveolar abscess that a fuller comprehension of the subject should be acquired."

THE FUNCTION OF THE PALATAL RUGÆ.

DR. H. BURCHARD* attributes to the rugæ the hitherto unmentioned function of assisting the tongue in its government of the position of food during mastication, the muscles of the tongue giving a somewhat wavy motion as it engages, progressively, the succeeding rugæ, thus gathering the bolus of masticated and insalivated food into the longitudinal furrow of the tongue and squeezing it back toward the muscles of the soft palate, and the dorsum of the tongue, by which it is propelled toward the

*Cosmos, April, 1895.

pharynx—this latter being the earliest stage of deglutition mentioned by the text-books on physiology.

The fact that the lower animals also have the rugæ supports this view, making the recognized function of assisting in speech secondary to that of aiding deglutition.

SALIVARY DIGESTION.*

Recent experiments to determine the effect of saliva upon starch, under different conditions, especially the admixture of acids with other food substances show, among other results, that "oxalic acid and vinegar are so strongly inhibitory of salivary digestion that they are wholly unfit to be taken with food. The greatly less, yet distinct, action of the acids of sour fruits in hindering the action of saliva upon starch explains the reason why many persons with weak digestion are unable to take acid fruits in connection with farinaceous foods."

THE FIRST PERMANENT MOLARS—THEIR RELATION TO THE FOUR JAWS OF MAN.

A paper bearing this title, illustrated by super-imposed diagrams showing the inferior maxillary in infancy, youth, middle life and old age, by Dr. J. E. Cravens, was read before the New Jersey State Dental Society,† the paper being a plea for the retention, in the jaw, of the first permanent molar, as essential to the normal development of the anterior jaw. In the discussion of the paper Dr. B. F. Luckey would retain them only when the teeth are hard and well organized, and the denture not crowded; otherwise, he would remove all four; otherwise, with all the teeth of poor structure, and the cuspids and bicuspid crowded, the teeth at the age of fifteen or twenty will probably require filling on all the approximal surfaces. He cited the case of a young girl for whom, at the age of ten, he extracted one badly-decayed first molar, but could not gain her consent to the extraction of the other which was, therefore, filled. At the age of sixteen there was not a carious cavity on the side where the molar was extracted, while six fillings were required on the other side.

* Odontographic Journal, May, 1895, from Modern Medicine.

† Cosmos, April, 1895.

MRS. DR. WHITE thought it possible that the badly-decayed filled first molar on that side had, perhaps, been sensitive and uncomfortable, and that the teeth on that side had decayed from not being used. She thought that if the mouth were carefully watched, and the gums promptly lanced for the eruption of the sixth-year molar, they could more frequently be saved.

DR. J. G. PALMER thinks that extraction of these molars must result in contraction of the arch, which, if continued for two or three generations, will cause an increase rather than a decrease in irregularity. If any are extracted, it should be all four, to avoid a change in the median line.

HYPODERMIC MEDICATION IN DENTAL PRACTICE.

DR. W. W. COON read a paper before the Union Convention in Buffalo* on the advantages offered by this method of medication, using the tablets as now furnished for this purpose. He suggests apomorphin as an efficient and prompt emetic; atropin to hinder pus formations, and in combination with morphin as a local anæsthetic and sedative in alveolar abscess.

Caffein for nausea or giddiness, or in case of depression following the administration of nitrous oxid; strychnin as a stimulant in the vaso-motor centers, and tannin as an antidote to strychnin; ergot in hemorrhage following extraction, also digitalis in combination with ergot; nitro-glycerin in all cases of heart-failure, hysteria, and as an antidote to cocain, etc.

RUBEFACIENTS AND VESICANTS.

DR. A. W. HARLAN (Union Convention in Buffalo),† thinks that these remedial measures are not taken advantage of by dentists in proportion to their value. Use blisters in inflammation and rubefacients in congestion. What the patient needs is a new sensation; this he gets with a blister or a rubefacient. To obtain the desired relief from rubefaction, the rubefacient should cover ten times the inflamed area *in a locality which will draw the blood elsewhere and relieve the tension on the arteries or arterioles*. Oil of peppermint, oil of turpentine, or oil of cloves will produce a

* Cosmos, April, 1895.

† Cosmos, April, 1895.

reddening, and where used over a large area will often so alter the blood-current that there will not be anything more than swelling, without suppuration.

COAGULANTS—SELF-LIMITING.

DR. A. W. HARLAN read another paper before the Chicago Dental Society,* illustrated by new experiments, to prove his position that "Coagulating agents prevent their own diffusion through dentine where there is a coagulable material in the dentine tubes." In pulpless teeth that have contained putrescent pulps and putrescing matter for a long time the use of coagulating agents is to be avoided, as stated by Dr. Harlan, for the reason that being self-limiting they seal within the substance of the dentine the poisonous matter which ultimately escapes through the cementum and pericementum, giving a permanent lameness to the tooth, which suffers from time to time from soreness and elongation, due to imperfect sterilization of the poisoned dentine.

In the discussion Dr. E. L. Clifford said that in cases of subsequent trouble at the apical foramen he had invariably found systemic medication sufficient to relieve the pathological conditions, and had not found it necessary to remove root fillings. He thought the dentist should be sufficiently familiar with the fundamental principles of medicine to relieve these conditions. This soreness is not always an evidence of failure, but rather of nature's effort—an acute condition necessary to bring about the regeneration of the tissue, throwing out a membrane to encyst the end of the root.

DR. CROUSE said that under such conditions he should expect his patient to leave and go to some other dentist for relief. He would not know how to apologize to a patient for a swollen face after treatment of his teeth.

DR. L. OTTOFY thinks that the conditions in all such experiments are too far removed from those existing with the teeth in the human mouth to be regarded as practically conclusive. The teeth, as we treat them, are at the temperature of the body, sur-

* Review, April, 1895.

rounded by a medium that is alkaline and constantly changing as the blood-current surrounding the root of the tooth changes. The reverse of all these conditions obtains in the experiments the results of which are under discussion.

HYDROGEN DIOXIDE.

DR. GEO. S. ALLAN gives, in "Some Notes on Hydrogen Dioxide,"* a statement of what it really is, and why it is so valuable. The affinities of oxygen are many and strong, and by its attraction for some of the elements entering into the composition of disease-germs and decomposing animal and vegetable matter, it breaks them up, forming new and harmless substances. The value of hydrogen dioxide lies in the pure, fresh oxygen it furnishes. In its pure state it is a dangerous chemical curiosity. In its available form it is held in aqueous or etherial solutions of varying strength and stability. The U. S. Pharmacopœia standard preparation is a three percent solution equivalent to ten volumes of available oxygen for one volume of solution. Brands of greater strength than this are shown not to possess good keeping qualities. "Pyrozone" three percent is shown to possess, in greater degree than any other brand in the market, freedom from excess of acid, poisonous barium salts and other impurities.

The etherial solutions, as pyrozone 5 percent, and 25 percent have the added advantage to the dentist of the aid of ether in dissolving the fatty matter encountered, and of penetrating the dental tubuli carrying with it the H_2O_2 , the evolution of gas in the tubuli forcing the contents out leaving them in a clean, healthy condition. The 25 percent solution answers the same purpose as sodium peroxide with the advantage of being always ready for use.

Editorially† the possibilities of bleaching discolored teeth by the adaptation of the cataphoric method, using 25 percent pyrozone, is shown as follows. Let a pledget of cotton, saturated as above, be introduced into the pulp-chamber and touched with an electrode as the positive pole of a battery of low tension, the

* International, April, 1895.

† Cosmos, April, 1895.

negative electrode being either held by the patient in the hand or applied to the outer enamel surface of the tooth. By this method pyrozone is driven to ultimate ramifications of the tubuli and the oxygen is set free in direct contact with any organic debris present. The writer says this method has been tested with most satisfactory results, being in point of rapidity and efficacy far superior to applications of the same agent without the aid of the electric current.

DR. ALBERT WESTLAKE* describes this method of restoring the normal color of teeth in a few minutes, in three cases, the first experiment in this line being made March 8th. The tooth was filled immediately after bleaching, the effect on the periosteum and adjacent tissues being apparently beneficial. In the second case the application was too long, the canal filled with cement, offering greater resistance. The tooth was extremely bleached. The third case was similar to the first.

THE FAUNA OF DEAD BODIES.

According to M. Meguire† the decomposing body is reduced to dust through the aid of microbes and small insects, each stage of decay being characterized by specific organisms which are so definitely associated with successive stages of the putrefactive process that the length of time which may have elapsed since the death of the animal or person may be very accurately estimated by careful determination of the character of the microbes and insects present. This constitutes an important factor in medical jurisprudence affording additional data in determining the length of time which has elapsed since death, often an important and puzzling question.

* International, April, 1895.

† Odontographic Journal, April, 1895. (From *Modern Medicine*.)

A VERY small amount of alkali is sufficient to keep metal from rusting, so that if steel, iron, nickel or copper instruments are dipped in five grammes alcohol containing one or two grammes of either borate, carbonate, bicarbonate, or benzoate of soda, they will not tarnish.

Fifty-Third Annual Meeting of the Mississippi Valley Association of Dental Surgeons.

AT the annual meeting of the Mississippi Valley Dental Society, held in April, 1896, the President, Dr. W. V. B. Ames, of Chicago, delivered a very interesting address. This address has not been obtainable, and so has not been published. As may be seen from the following discussion, had upon the points presented, they were important and interesting. The treatment and management of pulpless tooth-canals called out an interesting discussion. The subject of porcelain inlays came in for free discussion.—[ED.]

DISCUSSION OF PRESIDENT AMES' ADDRESS.

DR. M. H. FLETCHER: Mechanically, we do not always succeed in closing the foramen at the apex of the root. There is sufficient space at that point to allow septicism with all its train of *sequelæ*. My opinion is that there being more room at the apex—the foramen being larger than the tubuli—we will find more spores and germs there than can be found in the tubuli themselves, consequently inflammation, suppuration, etc., recur in this event. Such a condition may exist for years, laying dormant, until some exciting cause, as a “cold,” for instance, starts the whole machine into action. I have advocated the use of arsenious acid to prevent this action. The only preparation necessary for the use of this substance is either an aqueous or alcoholic solution. It is sparingly soluble in both, though I think the latter makes the better sterilizer of the two. No matter how crooked or irregular the root canal may be, the solution may be pumped to the apex, and it is comparatively easy to dry the root canal afterward, more especially when the alcoholic solution has been used. I am more than pleased with it.

A MEMBER: How do you prepare the solution?

DR. FLETCHER: My method is to mix equal parts of arsenious acid and prepared chalk or precipitated chalk, place this mixture in a convenient bottle and cover with pure alcohol. The latter takes up a portion of the arsenious acid, thus giving what

might be called a saturated solution, though the percentage is very small. The method of introduction into the root canals is the same as that used in conveying gutta-percha solution or any of the many agents used for the purpose, *i. e.*, pumping with a suitably-sized smooth broach.

DR. C. M. WRIGHT: It strikes me that the method just described by Dr. Fletcher is Simon-pure theory, and before we can adopt it, it should be verified by clinical experience. Do we *know* that arsenious acid is a germicide? Are we satisfied by laboratory experience that it is? Of this we must also be assured before we can assume its adoption as a permanent method of treatment. Arsenious acid has been used for more than sixty years, both for devitalizing pulp tissue and obtunding the sensibility of dentine. Following its use for the latter purpose, a crop of abscesses was the almost invariable result. If Dr. Fletcher were as minutely careful in the use of some other agent or material he would achieve an equal degree of success. I repeat, Dr. Fletcher's method is but theory as yet, though he may be working in the right direction.

DR. H. A. SMITH: The remarks just made by Dr. Wright remind me of a statement made some years ago by an eastern chemist, Chas. Mayr, to the effect that he found fungi growing upon the surface of an arsenical solution in his laboratory.

Dr. Miller is authority for the statement that the Germans have as yet no true sterilizing agent. It seems to me that the use of arsenic, as described by Dr. Fletcher, should be approached with very great caution.

Prof. Taft will not use arsenic for any purpose in the mouth, while, presumably, intelligent dentists use it freely.

DR. AMES: Why this seeming incongruity? There are many processes brought before our conventions that are voted "no good" at the time, while, on the other hand, clinical experience demonstrates their feasibility and value.

DR. N. S. HOFF: The president's address covers so much territory, in fact the entire field, that it could, in fact, be used instead of the official program.

Dr. Fletcher's method of treatment may be and undoubtedly

is good in many cases and conditions, but it does not follow that it is so in *all*.

Arsenious acid has been used for many years to preserve cadavers for dissecting purposes, and is in use now for the same purpose. An interesting case presented itself to me not a great while ago. The patient had been taking internally for some time a nostrum containing arsenic. I found many of the teeth badly broken down, some of them mere roots; upon investigation, I discovered that the pulps in these, though dead, were not decomposed, but well preserved, mummified, in fact, or embalmed, if you please. Alcohol will dissolve less than one percent of arsenious acid. For my part, I greatly prefer to use formaline, which, properly diluted, is not escharotic.

DR. WRIGHT: Are we to understand that it (arsenic) will embalm living tissue?

(No answer).

DR. H. A. SMITH: With reference to the inlays mentioned in this address, I consider them in some respects superior and preferable to large masses of gold. Thermal conductivity is lessened, and that feature alone is a great comfort to the patient. The one great objection to the system of inlays is the narrow line of cement between the inlay and tooth border. In the main, the system is good and the introduction easy.

DR. SAGE: Dr. Miller states that iodoform is practically inert, notwithstanding which, many eminent practitioners firmly adhere to its use.

PROF. TAFT: Dr. Fletcher may obtain good results in the exhibition of his method of treatment with arsenious acid. But I apprehend that, in the hands of many others, very undesirable results will be reached. If every case had been equally as well treated with something else, would not your success be equally as satisfactory? I used arsenious acid for a long period, mostly for obtunding sensitive dentine, but it should be used with extreme caution, if at all. I found that the pulp dies, liquifies, abscess following, and so abandoned it long ago. I do not like the principle of sealing up in a root an acrid, corrosive, dangerous agent, and see no reason for resuming its use. The young men should be cautioned against it.

DR. FLETCHER: The caution to be observed in this method, I presumed was understood. Had I been addressing a class of students, I should have expressed caution in specific terms. (Laughter).

DR. F. A. HUNTER: Do you force the solution through the foramen?

DR. FLETCHER: Not if I can help it. I have done so, with results of arsenical poisoning, abscess, etc. I have no means of *proving* my success with it, save that the proportion is larger.

PROF. TAFT: It may be, that knowing the dangerous agent you were using, you observed more than ordinary care in handling it.

DR. FLETCHER: That is very likely. With proper care, such as every practitioner should always exercise, there is no great liability of accident.

Subject passed.

Fooled by His Imagination.

The following story comes from France. Two travelers met in a hotel. There was but one vacant room for both, and there was no alternative but to share this room and its one bed.

In the middle of the night, one of them wakened in great distress, crying out, "Air, air! I am smothering!"

His companion arose and hunted for the matches, but he could find none. The room was so absolutely dark that he could not find the window. The sick man continued to cry "Air! I am smothering! Break the glass if you can not open the window!" So a pane was smashed.

His asthmatic companion was now relieved, and after expressing thanks, went to sleep.

In the morning they found the windows intact; they had only broken the glass of a bookcase. This satisfied the mind of the restless sleeper. It was to him sufficient. So it often is in other matters. We imagine many of our troubles. The light of knowledge would show they were only phantoms, creations of our own imagination — *Journal of Hygiene*.

COMMUNICATIONS.

Report of Committee on Dental Science and Literature.

J. M. TEAL, KENDALLVILLE, IND., CHAIRMAN.

Read before the Indiana State Dental Society, Indianapolis, June 30, 1896.

We must all recognize the fact that the science of dentistry, like all other sciences, is an exact thing, and it is, therefore, with a feeling of great thankfulness that we see the effort being made upon this line by those who are giving their time and thought to the work.

Your committee will not attempt to cover the whole field of dental science and literature, or elucidate theories, but try to emphasize a few salient points, leaving to each individual the task of gathering the ripened grain in his own way, for his own strengthening.

"Esthetic Correction of Facial Contours," C. S. Chase, M.D., D.D.S., Tri-State meeting. The principal point claiming notice is the creation of new territory and the movement into it of the teeth at fault. A careful reading of the paper should be made, and if clinically considered watch the results of the radical displacement of the tissues.

M. H. CRYER, M.D., D.D.S., American Dental Association, gives a fine study of the maxillary bones, calls attention to the variation found in the antrum of Highmore, the size and position, and the frequency of the floor being formed to accommodate the apex of roots of the teeth, and cites a case where this order has been changed to allow the crowns to show in the antrum. This is not new, but interesting. That section devoted to the lower jaw is more complete, possibly not having so many phases. As a whole, the excellent style in which the matter is treated and shown makes it, by far, the most valuable paper on the subject.

"Prosthetic Dentistry, Glenoid Fossa, Movements of the

Mandible," W. E. Walker, D.D.S., read before the Southern Dental Association. This is a more elaborate attempt to follow the movements of the human maxillary, in the grinding of food than any writer previously has made. Look the matter up and see if the author's deductions are correct.

"The Effects of Oxidation," G. V. Black, D.D.S., S.C.D. The conclusion seems to be that the alloys should contain 65 per cent silver; should be fresh cut; practice suggested to place the material in position before oxidation occurs.

We would call your attention to another paper by Dr. Black, read before the New York Society, last January. This paper is so completely at variance with the theories formerly taught and now held by so large a percent of the profession in regard to the old supposed maxim, "soft teeth, poor teeth," that we will not mar the author's argument by giving any detached portion of it, but express the hope that every member of this association who has not read the article will read it, and those who have will read it again. The author enters the domain of filling material also, in this paper. He shows by instrumental tests what we all knew but never considered, that the teeth are harder and stronger than gold, either hammered or cast. That fillings, the best that had come under his test, showed too great a want of solidity; explains why old non-cohesive fillings were tooth-savers only where four good walls held, and that when force was made upon the surface their diameters enlarged, while their solidity did not become greater. Cohesive gold, he shows, simply becomes more compact until a density of fifteen volumes has been reached, when expansion begins to be noticeable. Through all this runs the thread of fact that gold is not yet the ideal filling material, for the reason that we have not yet learned the secret of attaching it to the walls of the cavity in such a manner that each particle when it comes in contact with the tooth substance will "glue" itself, for the want of a better term, thereto, thereby taking its share of the strain when force is brought to bear upon the completed filling. Whether this can be done by electrosynthesis remains to be seen.

Of the new local anæsthesia cataphoric method your commit-

tee will refrain from discussion, as we are to have a clinic demonstration during this meeting of this subtle agent.

Rosenthal suggests silver bands slipped over the teeth for the cure of pyorrhœa alveolaris.

E. S. Talbot, M.D., D.D.S., again gives us a valuable paper on "Dental and Facial Evidence of Constitutional Defects."

At the proper time during this meeting the committee would be pleased to have some expression from the association in regard to dental literature for the public press.

Introductory to Discussion on Dental Nomenclature.

BY DR. S. B. BROWN, FORT WAYNE, IND.

Read before the Indiana State Dental Society, Indianapolis, Ind., June 30, 1896.

Faultless Anglo-Saxon is rare, but the glaring errors of speech daily assailing our ears, coming from those who have assumed the obligation of sustaining the reasonable requirements of a learned profession, are humiliating, as the popular estimate of a profession is justly based on the evidence of culture of its individual members.

We are often attracted to those giving seeming indication of an interesting personality only to experience a sudden disappointment, when, for example, inquiring for the health of a mutual friend to be answered: "I have not *saw* him recently; when I *seen* him last he was as usual."

Correct language frequently has an advantage over education as a social passport.

It is admissible sometimes to yield points in adapting our language to the comprehension of patients, those illiterate, not, however, to the extent of copying one who directs attention to a tooth locating it as the "down backest." Nor to accept the language of the Irishman who called for extraction and rebuked further inspection of teeth in his lower jaw by exclaiming: "Faith, it is over-head."

Within the recollection of many such crude names as "job"

was generally applied to a case of construction of artificial teeth; "plug" for filling; "pulling" for extracting is still projected into dental language. It is a common error for members to speak of our association as a "convention." It is superfluous to prefix the adjective "free" when naming the margin of the gums.

It is our misfortune that some are willing, by inattention to correct speech, to be rated as a misplaced professional man, or what is worse, to thereby compromise our profession.

This introductory seemed irresistible in complying with the duty assigned me by our Executive Committee to open a discussion on the report of the American Dental Association's Committee on Dental Nomenclature.

Physicians Should Do Less Work.

Dr. Kortright, in the *Brooklyn Medical Journal*, says that arterial sclerosis is a common cause of death of physicians. The lesson we should learn from our deceased colleagues, he states, is not to work too long. When you find your arterial tension increasing, your temporal artery becoming tortuous, your radial growing hard, especially if you have a little palpitation and pass an increased amount of limpid urine, whatever your years, know that old age is upon you. Henceforth shape your life like one that is old. Curb your ambition. Be content with a small practice. Reduce your expenses. Give up your night work. Decline confinements. Take a long vacation in summer. Retire early. Eat abstemiously. Drink not at all. Sell your horse. Take a great deal of moderate exercise in the open air. Watch the functions of the skin. Guard against a chill. Cultivate an even disposition. Study to be quiet.—*Maryland Med. Journal*.

An Anomalous Condition.

An Irishman once told his physician "that he stuffed him with so many drugs that he was sick a long time after he got well."

SELECTIONS.

What is Man's Natural Food ?

BY CHARLES E. PAGE, M.D., BOSTON.

A few years ago the writer contributed an article on the topic of natural diet to one of our leading medical journals, taking the ground that nuts and fruits were not only the original diet of human beings, but that they are to-day, by all means, the most wholesome and nutritious of all foods. Nuts of all kinds, the fresh, juicy fruits, as oranges, peaches, apples, etc., the date, fig, grape (raisins), etc.—all these are relished by mankind, the world over, and supply every element required for perfect nourishment, and, generally speaking, all these foods that are absolutely essential to life and health are obtainable by the greater proportion of the people. Impecunious persons can not indulge in strawberries at a dollar a box, peaches at five dollars a basket, or other fancy varieties at fancy prices, to be sure, but, assuredly, all persons who can pay from fifteen to twenty cents a pound for beef, as we know is true of no end of wretchedly-poor people in the mistaken notion that a large share of animal food is essential to health, or, perhaps, in the idea that they must imitate the diet of the rich—can pay as much per pound for English walnuts, or other varieties of nut-food ; and many would be inclined to do this if they were fortunate enough to know that nut-food is far more nutritious and a better balanced diet than flesh-food at any price.

That wonderfully-muscular animal, the squirrel, that carries himself with such rapidity, almost like lightning, to the top of the tallest tree—does he not build his muscle from nuts ? In winter this is his chief food, and in spring he lives on the fresh buds and green things, comparable to our fresh fruits, early vegetables, lettuce, etc. Almost every one is fond of nuts of all kinds, and we know that nuts and raisins are served as the

last course of swell dinners, probably because they are so delicious that they tempt the appetite, even after the diners are fed to repletion. And this fully accounts for their alleged indigestibility; they are usually eaten after an excess of food has already been taken, or they are taken in excess because so delicious that "one doesn't know when to stop." Under like conditions breast-milk, unquestionably, the natural diet of the nursing, proves "indigestible." Too much of a good thing is bad.

In acknowledging the receipt of a reprint of the article mentioned above Prof. Edward Atkinson, the eminent student of household economics, writes: "You may be interested to learn that Sir Isaac Holden, probably, or almost certainly, the inventor of the lucifer match and absolutely the inventor of the largest and most successful wool-combing machine, now very rich and nearly the Nestor of Parliament (about 86), believes that nuts and fruits are the natural food, and by limiting his diet mainly thereto he may expect to extend the duration of life to one hundred and twenty-five years. His place, in Yorkshire, is a very interesting one, especially his acres of glazed fruit-gardens on the ridges of Yorkshire."

The natural diet question is, at the present time, attracting a great deal of attention, and throughout Europe, England, and even here in America, the propaganda of "the natural diet" has, within the past few years, acquired quite an impetus through the intelligent efforts of the Drs. Densmore, of London and New York. Rich enough to enable them to do so, they have established a health journal, *Natural Food*, publishing it monthly at a cheap rate, in London. The evidence of the benefits arising from this natural diet, furnished in the columns of the modest little journal referred to, would be quite surprising to any one not already a convert to the theory that the nuts and fruits are the best foods for nourishing the body in health, and best calculated to aid in the cure of many forms of chronic disease.

The nut is so "hearty," contains such an amount of solid material, that a novice might easily take an excess of nutriment, unless admonished as to amount. I once delighted the heart of a

lady patient by prescribing nuts as a part of her diet, cautioning her against taking an excess. Doubtless forgetting my advice as to quantity she bought a pound of English walnuts and ate most of them at one meal. Naturally enough she reported the next week that she was "sick of walnuts," and couldn't eat them any more. A few ounces of nut-meat, with a large proportion of one of the sweet fruits, as dates or raisins, make a full dinner. A hearty lunch may be made from, say, two or three dozen dates with a sip of milk with each, making a "sweet pudding" that no *chef* on earth can equal for wholesomeness or excel for toothsome-ness.

Alcohol in the Treatment of Disease.

The Southwestern Medical and Surgical Reporter, in a very interesting editorial, has this to say on the above subject :

"The time was when alcohol was believed by the majority of the medical profession to be the ideal stimulant in typhoid fever, pneumonia—particularly in the latter stages—and, in fact, all cases of anæmia or collapse or shock, or in any and all conditions of the system in which the vital powers were, by any means, brought below par.

"Men in the front rank in the profession held out, and a few are still holding out, that alcohol augmented the heart-force, and by that means increased arterial tension, and if given, when, for any reason, the heart was unable to properly fill the arteries, and especially those at a distance from the heart, the heart's energy would be revived and the results would be beneficial; and this all in the face of what physiologists had taught many years ago—that alcohol was rather a depressant of the vital powers than a stimulant.

"When we know the immediate effects of a large dose of alcohol upon the coats of the stomach, and when we stop to reflect that one of the most apparent effects of alcohol upon the system at large is a benumbing of the sensibilities, how can we doubt its depressing influence?

"Real stimulants do not act in this way, but their effect is

to increase the tonicity of the nerve-supply throughout the system, by stimulating the heart and causing it to beat with more energy, thereby increasing sensibility and giving vigor to all the functions of the body.

“The concensus of opinion is now, we believe, that alcohol holds a very limited place in medical therapeutics, and should rarely be used—surely never as a stimulant.”

Milk from Sewage Farms.

If a cow is fed on turnips, within twenty-four hours her milk will taste of turnips, and if butter is churned from the cream the butter will taste, too. The intensity of the turnip flavor is the measure of the quantity of turnips taken. In like manner, if pigs are fed on horseflesh, as they often are, their bacon will taste of the horseflesh; if they are fed on fish the bacon has a fishy taste. The same is true of hens and their eggs. Feed hens on decaying animal matter, which they will eat greedily, and both their eggs and flesh will be most unpleasant and unwholesome eating. In the case of ducks the facts are much more striking. Ducks are very unclean feeders. Give them an abundance of garbage, and they will refuse corn and similar food. Their flesh is then most pungent to the taste, and in many people is so potently poisoning as to produce diarrhœa. Animals fed on sewage farms, under certain conditions, are liable to have their flesh and secretions changed in character by the sewage-produced herbs and grasses upon which they feed. If the sewage on a given farm be so managed that no more of it be put into the soil than any given crop can adequately deal with, then the crop will be sweet and natural, and the cattle or other animals fed on it will be sweet and natural, too. But if the soil be gorged to repletion with sewage, then the crop will be surcharged with sewage elements, and is unfit for food, and the meat and milk of animals fed on such a crop will be like the crop, and very unpleasant to the taste as well as dangerous to health. It is in the last resort all a question of the intelligence and conscience of the managers of sewage farms.—*Ind. Lancet.*

Surgical Use of Cocaine.

We quote the following practical observations from the *Codex Medicus* :

1. The use of cocaine should not be abandoned because its irrational employment has produced deleterious results.
2. Always make a thorough physical examination of the patient before injecting the drug.
3. It should not be used in cases showing organic diseases of the brain, heart, lungs or kidneys, or in persons of neurotic diathesis.
4. Children bear it fully as well as adults.
5. The patient should always be placed in a recumbent position prior to its employment.
6. Constriction should be used whenever possible to limit the action of the drug to the desired area.
7. Use a freshly-prepared solution for each case.
8. Distilled water should always be employed, to which phenic, salicylic, or boric acid should be added.
9. A 2-percent solution has a better effect and is safer than solutions of greater strength.
10. Never inject a larger quantity than one and one-eighth of a grain when no constriction is used.
11. About the head, face and neck one-third of a grain should never be exceeded.
12. When constriction is possible, the dose may be as large as two grains.
13. Every slight physiological effect is not necessarily to be taken as cause for alarm.
14. Cocaine does have effect upon inflamed tissues.
15. In case alarming symptoms occur, use amyl nitrate, strychnine, digitalis, ether or ammonia.

To which we will add: Always use a chemically-pure product, free from isotropyl and cinnamyl-cocaine as well as other impurities, the presence or absence of which can be readily ascertained by the simple tests of the U. S. Pharmacopeia.—*American Therapist*.

Growths in the Nasal Passages Due to Colds.

Dr. Thomas F. Rumbold says every patient in whom growths are found has a history of taking colds in the head for years before he noticed the nasal impediment. These growths must have a cause, and the only ailment the patient had was his nasal colds—hereditary of disease cuts no figure—therefore, the inflammation caused by the colds is the cause of the growths. Long and careful observation will compel every one to admit this. I am well aware that not infrequently a patient who has a large growth will say: "I do not take cold easily or frequently. I do not think I have had a cold in the head for two or three years until the one taken a few weeks ago." The reason for this apparent absence of colds is that his mucous membrane has been so long under the influence of inflammation—certainly several years before his nasal growths appeared—that the membrane is in an anæsthetic condition; obtunded sensibility of a part always follows a chronic inflammation, so that the patient cannot feel the effect of slight colds; it requires the effect of a severe cold to cause his mucous membrane to recognize it. Nor does this disagreeable effect last very long, so that he is quite liable to forget the last cold. It will be noticed that the older such patients, the less they will say about taking colds in the head, only because their mucous membrane is becoming more and more obtunded; but it will be noticed, nevertheless, that they are now far more cautious to avoid a draught of air, and they wear much warmer clothing than they did several years previous, showing plainly that the whole system, unknown to them by any sensation they experience, is becoming more and more under cold-taking influence.—*St. Louis Med. and Surg. Journal.*

THE British Medical Association has 16,332 members. The entire number of medical practitioners in the Kingdom is 27,392.

COLD burns like molten metal at a temperature of 180 degrees below zero.

A Needed Reform.

The Indiana State Board of Health has issued a circular letter to all railroad officials asking them to have ejected from their trains every man who persists in spitting on the floor of the cars or stations after he has been warned not to do so. In the circular the board explains that the sputum contains the germs of la grippe, nasal catarrh, and various other diseases. It also declares that "spitting is a nasty and unnecessary habit," and explains that the Board of Health will pass a rule against spitting which will have all the force of law if the railroads will post it up and endeavor to enforce it. The circular adds: "When the rule is first published and posted up in public places this board will, of course, be loudly abused as foolish, impracticable and idiotic. Attention thus being gained, we will publish in every county reason for the action." Such a reform as the Indiana health officers have undertaken is needed in every part of the United States.—*Chicago Medical Recorder*.

Medicine as a Moral Agent.

Whereas formerly the sulky, stupid, or ill-tempered boy was commonly relieved of such distemper by the master's rod, it is now believed by a certain school of psychologists that with the judicious use of internal remedies his case is better reached than by this time-honored method of counter-irritation. A clearer insight would discover the salutary effects of a dose of castor-oil in many instances. The writer once knew the wife of a physician who habitually administered purgative doses of calomel to her two little boys with the sole intention of improving their dispositions. No less an authority than Dr. Lauder Brunton has directed the attention of the profession to the fact that many quick-tempered persons are really victims of masked forms of gout or rheumatism, and may be relieved by appropriate remedies which he has facetiously called *temper powders*.—*Medical News*.

Moving Toward the Light.

The long fight among the different schools of medicine has been based upon differences of opinion upon the so-called action of drugs; but intelligent physicians are finding out (many long ago made the discovery) that in the relation of the human body and drugs, it is the cells of the body which are active and not the drugs. The body acts upon the medicine, and not the medicine upon the body. Modern developments in hydrotherapy, electrotherapy, massotherapy, and the various branches of physiological medicine, including dietetics, have left comparatively little room for pharmaceutical products, so it is exceedingly foolish to still maintain the old quarrel about big doses and little doses, when doses of any sort have so small a part to play in the rational treatment of disease. The high-potency delusion seems about dead.—*Modern Medicine.*

Fatigue.

The experiments of Masse, of Turin, and of Michael Foster, the physiologist, have shown that the sense of fatigue is due to poisoning of the cerebrum by the products of retrograde metamorphosis. "The blood of a tired animal is poisoned, and when injected into another animal causes the phenomena of fatigue." The toxicity of the blood may become so great as to prove fatal, as was shown by Foster in rabbits that had been hunted to death.—*Dr. Bartour, in American Practitioner and News.*

THE British Medical Association will meet in Montreal, Canada, the last week in August, 1897. This will be a memorable occasion as being the first time in the history of the Association for the meeting to be held elsewhere than in one of the cities of the British Isles. No doubt hundreds of physicians from the United States will attend the meeting, while other hundreds from Britain will be in attendance at the meeting of the American Medical Association in Philadelphia, in June, 1897. It is a pleasure to announce that the proceedings of both of these great Associations are conducted in the English language.

EDITORIAL.

Educational—College Work.

The time has again arrived when a great work is to be resumed, namely, the educational work, and this, too, all the way from the most elementary kindergartens to the highest university in the land—two classes are engaged, three, indeed—those who teach, those who are taught and the care-takers of both classes.

All classes of educational institutions are alive with energy, enthusiasm and industry in view of that which is before them. This may be said of those entering dental colleges as well as of any others. The numbers that have entered the dental schools during the last four years have been a surprise to all, teachers as well as non-teachers. During this time the aggregate number of students in our colleges has nearly doubled, and the indications are that the ratio of increase will be kept up this year, at least this may be inferred from the information that is current. An interesting inquiry : Why this rapid increase? and how long is it to continue?

In reply to these questions various considerations will enter : First, it is a fact that in none of the professions or pursuits of men has there been a more rapid growth and development than in the art and science of dentistry, and this comes of a real necessity in the conditions of human society, that is being more and more largely recognized as the years go on : the value and importance of the teeth in the human economy were never so fully realized as at the present time, and with that recognition comes a desire for better things, and especially so when the efficiency of dental practice is so largely demonstrated as at the present day. Dentistry commands a respect to-day that was never accorded to it before, and on this account attracts the attention of the student more than ever.

Many who contemplate this as an occupation look on it as an

easy one and yielding large pecuniary rewards, indeed, in some cases, expressions are indulged that indicate that this is the leading consideration: in entering the profession of dentistry it is well that this incentive be kept well in the background, lest disappointment comes and stands as a persistent entity in the coming time.

The leading idea in taking up and following the liberal professions should be the accomplishment of the largest amount of good to humanity. The world needs that kind of help. Embarrassments and obstacles in other occupations, doubtless, have something to do in influencing young men to enter the dental colleges. And as crowds flock to the schools there is an incentive to organize more colleges, and competition is made the more aggressive and persistent.

To the second question: How long is this state of affairs to continue? Who knows? We will await the development of the future. We are not, however, in sympathy with the fear that the country is to be overrun with dentists.

Permit this suggestion: Let the determination of every teacher be, "I will do better and more thorough work than ever before;" and of every student, "I will make the most possible of myself and of my efforts during my college term, and prepare myself to bring honor to my alma mater, to my teachers and to my prospective profession, and to render the highest services to those who may, in the future, be placed in my care."

Bibliographical.

DENTAL CHEMISTRY AND METALLURGY. Fourth Edition, Revised and Enlarged, with many Illustrations. By Clifford Mitchell, A. M., M.D.

The fourth edition of this work has recently been issued, largely revised, much enlarged, and made better adapted to the wants of the dental student for whose needs it has been more especially prepared. More than one hundred pages have been added to the book, containing matter entirely of a practical kind

that serves to illustrate the principles covered by the five preceding chapters. This new work upon Experimental Chemistry has been followed by an outline on Chemical Analysis, the recognition of the more usual metals being considered at much greater length than in previous editions. Experimental work in this edition includes Physiological Chemistry, in which that of digestion is treated at considerable length. All the matter pertaining to Dental Chemistry has been retained and considerably more added. The work is a most admirable one for use in dental colleges and should find a place in every dental college library ; indeed, every dental student should possess a copy, and not only possess it, but should take it in, digest it, and make it a part of himself.

The various subjects presented are treated very clearly, concisely, and not overloaded with verbiage. Indeed, they are remarkably condensed, considering that the ideas are so fully presented. It is impossible, in a few words here, to give an idea of the real value of the work ; *that* can only be attained by a full and careful study of the book itself. While this treatise is invaluable to the dental student, it is quite as valuable to the dental practitioner who desires to inform himself on these subjects and keep abreast with the times, so we have no hesitancy in saying to every member of the profession, as well as to every dental student, let this book find a place in your library, and let it receive the consideration it merits at your hands. The work is published by the W. T. Keener Company, of Chicago. Its mechanical execution is excellent, with splendid type, excellent paper, and is put up in very substantial, neat form. It can be obtained from the publishers or through any book-seller.

Another Dental College.

During the past year a dental college has been organized in Pittsburgh, Pa., and apparently under good auspices. It is taking high ground in its requirements for entrance, in the curriculum, and in regard to graduation. Dr. J. G. Templeton is Dean, and he has a good corps of co-workers. The school will be heard from.

A Mistake.

A case of an unusual kind came under the notice of the writer recently.

Miss F——, about twenty-one years of age, presented her teeth for inspection. The teeth were in good condition and the mouth healthy; a few small cavities had been filled; the teeth were free from irregularity. The mouth being opened, it was at once noticeable that the left superior cuspid was absent, and a space sufficient for its accommodation remained between the lateral incisor and first bicuspid.

The absence of the tooth caused a very pronounced depression of the surface of the part in which the tooth had stood, and not only this, but the lip and face covering this part was quite depressed, so much so as to mar the symmetry of the face, especially to a close observer. Now for the history:

At the age of about fifteen this tooth was not fully grown, having been a little tardy in its eruption. The young lady, at about the time above indicated, having her teeth examined, called the attention of her dentist to this tooth, when he promptly replied: "Oh, that is a temporary tooth and must be removed to give place to the permanent one." The patient remarked that she "supposed she had shed all her temporary teeth." To which the dentist replied: "No, it is a temporary tooth and must be removed; you go to Dr. —, take gas, and have it extracted." And at once she obeyed, but to her life-long regret.

Now, what shall be said about this case? Well, the dentist is not a quack; he is not ignorant; has had good educational advantages for his profession; he has good a practice, that ought to satisfy any one. Now, why this blunder? Simply inexcusable carelessness, that will probably be remembered against him through life, and should bring upon him the sharpest censure. This case emphasizes the importance of the utmost care in all examinations of the teeth.

Of the extractor who removed this tooth we know nothing, except what is revealed by this operation. He seems to have been little, if anything, more than a machine, ready to obey any request regardless of consequences, even to the removal of a sound, healthy, cuspid tooth, which will impair the symmetry of a beautiful oval of teeth for life.

If so gross a mistake occurs in so simple a case as this, what may not happen in the more complicated and abstruse cases?

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PROCEEDINGS.

Points of Interest in the Care of Children's Teeth.

BY B. J. DE VRIES, D.D.S., HOLLAND, MICH.

I will include under this subject children between the ages of four and fourteen, as that is the period of life that great depredations usually exist in the oral cavity.

The prevailing idea is that when a boy or girl has grown up to manhood or womanhood, then they must have their teeth looked after, as that is the period of life when self-respect is generally asserted.

Young men and women call upon a dental practitioner sooner and oftener on account of their personal appearance than from a sense of the utility of the organs of mastication. Call to mind your appointment book and note your cases. Here is one who says: "I am going to have my teeth attended to. What can you do with this or that tooth? Is it worth saving? or shall I have a plate?" Or, perhaps, mother says: "I must have a gold filling in my front tooth." She wants nothing else.

There is another class of patients that are driven to our offices with the toothache, and we exert an influence on them that is beneficial for the preservation of these organs, for they heed our warning and have their teeth cared for and saved.

The deplorable condition the dentist is called upon to witness, the putrefaction, disease and suffering, both in young and old, can, to a large extent, be traced back to boyhood or girlhood, before the age of fourteen. Show me a boy or girl at the age of

fourteen with all the teeth *in situ*, free from decay or properly filled, correctly articulated and properly cared for, and I will show you a man or woman who will point with pride to his dentist and who will be a blessing to his offspring and a comfort to himself.

Then, since our boys and girls of to-day twenty years from now will be our men and women, filling all vocations of life, it becomes evident that if we desire a race with well-cared for and sound teeth, *childhood* is the time to train, to regulate, to prune, before the destructive agencies or malpositions will stamp upon that face the marks of neglect of bygone days. The gardner deals tenderly with his young saplings as its top towers heavenward—he bends, prunes and cultivates that he may obtain a tree of symmetry and beauty whose shade will be sought by many a weary traveler.

We, as dentists, whose duty it is to care for children's teeth when diseased, to watch with great care the permanent teeth advance and take the places of the temporary teeth, have a higher duty to perform, a duty that may not bring us directly any dollars and cents, a duty that costs us nothing which we can perform as we are about our daily business—the education of our patients in regard to the dental organs.

Every mother ought to know that at the age of six, or thereabouts, the first permanent molar makes its appearance immediately back of the deciduous molar. She must be instructed about the value of this tooth during that critical period of childhood, that the second molar will not appear until the twelfth year, and that the child will have to depend upon this tooth, to a great extent, for mastication.

It is a universal rule that parents will mistake this tooth for a deciduous molar, yes, and even eight out of every ten physicians will make the same mistake.

Note the surprise which is manifested when we tear, with cold steel, an abscessed, ugly-looking molar from its hiding-place in the mouth of an eight-year-old child who could rest neither day nor night, whose moaning and earache, through reflex neurosis, perplexed both parents alike; and it remained an open

question whether the child really had the mumps or whether a tooth might not have been the cause of all this suffering.

The first question after the removal of the cause is, "Doctor, will she get a new one for that?" "Where ignorance is bliss, it is folly to be wise," and if we think it will shock the parents too severely we can safely answer this question in the affirmative, for we know that the twelfth-year molar will get there some way, at all hazard, if it has to get there head foremost.

This total ignorance of the public in regard to the dental organs is deplorable and how best to educate our people in the care and preservation of the teeth is an open question to be solved by the dental profession of to-day. A comparatively small part of any community comes in contact with a dentist and have established habits of daily using the brush, and especially is this so among our children from four to fourteen years. Where parents do not enforce these habits, and interest themselves concerning the welfare of their children how can we expect a better condition.

It is also true that in spite of all efforts some teeth will not stand the test of time, and we will not deny that a perfect and healthy set of teeth can exist in spite of all neglect. These are exceptions, however, and not the rule. Nature, unassisted, is as mysterious as nature, assisted, is wonderful. A child may pass through the period of eruption of the deciduous teeth without an ache or pain. These organs may perform their functions perfectly and in due time be replaced by permanent teeth as perfect and symmetrical as the former. But, alas! this is not always so. Too often the skill of the dentist is taxed to its utmost in arresting decay and preserving the beauty and symmetry of the face.

How, then, shall we educate the public along this line? The dental profession itself is inadequate to the task; so we must look elsewhere for aid. Where better can we go for assistance than to that grand educator itself—the public schools of our land. Already there has been added to the curriculum of our schools such branches as hygiene and physiology. Why not also give instruction, in a practical way, that can be comprehend by

the young in the care of the teeth? If one hour in every week was devoted to this subject, and the subject rightly handled, it would be time well-spent.

Such questions as these taught from charts with few illustrations, would fill a long-felt want:

Give the number and names of the deciduous and permanent teeth. Time of eruption. What kind of food is beneficial to tooth structure?

How should teeth be brushed? With what? Etc., etc.

I believe, if some wide-awake dentist would write a small, attractive work on this subject to be used in the public schools, he would confer a great benefit upon society, and I am sure it would not be without remuneration to himself. Society must learn that a dentist can not save teeth without the assistance of their own efforts in caring for the same. There are those who will not, among men and women as well as children, but let us do something for those that know not how and why, who never come near our offices, and who are waiting to be taught that they may care for their own teeth as far as in their power lies, and to be able to discern when they need the assistance of a dentist.

We take it, then, for granted, that if we expect to see good results from our labors we must establish habits of cleanliness. The use of the brush and a proper antiseptic mouth-wash are essential parts to be performed by our young patients. And without these habits our work will be null and void.

On the other hand, the surgical and mechanical part to be performed by the dentist is of great importance.

Because the deciduous teeth are only for temporary service is no reason why they should not be properly cared for and filled. We can expect far better permanent teeth, and better development of the maxillæ where the deciduous teeth are well cared for and properly exercised, and it should be the aim of every dentist to give this subject the utmost attention however arduous the task may be.

The approximal surfaces of the deciduous molars are most frequently attacked by decay, and if not filled in time these spaces will form most acceptable places for microbes of fermenta-

tion and putrefaction. Of all suffering we are called upon to relieve, in nine cases out of ten, it is in this region, in connection with the first permanent molar.

It is my practice to fill these temporary teeth with cement only, and as soon as possible after decay has attacked them.

I never extract them if I can combat the difficulty in some other way. Very often I have found after much ulceration fungus growths upon the gums, and the apical portion of the roots exposed. In such cases, as also in the incisors, I nip off the exposed roots, leaving the crowns *in situ*, to fill up the space and favor the expansion of the maxilla.

I have heard of dentists devitalizing a deciduous tooth with arsenic and filling the roots with gutta-percha. I must confess that I never attempted such an operation on account of the difficulty in managing children, and the many obstacles we have to contend with in manipulating these delicate tissues.

Wherever I find it necessary to save a deciduous tooth, where the nerve is decomposed, I render it aseptic with peroxide and cloves and carbolic acid $\frac{1}{2}$ and $\frac{1}{2}$. After that I fill the roots with shreds of cotton impregnated with aristol dissolved in chloroform and fill the cavity with cement.

My reason for filling these roots with cotton is that it is next to impossible to apply enough hot air so as to get them perfectly dry, and if there should be any septic matter left in the canals, cotton will more readily absorb it, and the aristol will render it antiseptic.

What to do with the first molar is another perplexing question. A great many of our young patients have to lose this tooth at an early age. The best time to extract the same we will not here discuss but we will say, that many of them are extracted that should be saved.

This is the most useful and best adapted tooth for mastication of all the dental organs. Upon the loss or retention of this tooth hinges many intricate problems of irregularity and articulation. When the structure of this tooth is fairly good, and if attacked by decay at all, the most favorable surface is invariably the anterior proximal; the reason for this can be readily seen

when there is decay in the posterior proximal surface of the second deciduous molar. Food will be impacted between these two teeth, and through fermentation the first molar will be affected at the anterior proximal surface.

The question is often asked, should, in such cases, the tooth be filled with a permanent filling?

We believe that if the tooth structure is good, and there is a chance to make a perfect operation, we should not hesitate to fill this tooth with gold; but the chances are that we find decay at the seventh and eighth year, and the second deciduous molar will not be shed until the twelfth year which makes it difficult of access.

In such cases I fill this tooth with a phosphate filling, and as soon as the second deciduous molar is shed, and before the second permanent bicuspid is erupted, I fill the first permanent molar with a permanent filling. This method obviates the necessity of cutting through the grinding surface, and in many cases can be accomplished without the rubber-dam. For, let us remember that all operations on the teeth of children should be conducted with the utmost of care and as painless as possible.

DISCUSSION.

The discussion of the paper presented by Dr. De Vries, in connection with the paper presented by Dr. Adams, was opened by Dr. LOEFFLER, as follows:

“The subject presented in Dr. Adams’ paper is one that is being largely considered in the country just across the line—Canada; and it seems that they are getting the start of us, and it seems to me that, at this day, the closing days of the nineteenth century, we ought to do more than advance theories. Our profession is recognized by learned men outside of it as an exceedingly practical one; we are a practical profession, we have practical men—medical men admit that. Now, then, if our profession is known to be so practical, we ought to do something that is practical, and the ideas that are suggested here by Doctor Adams are those that I had in mind, and we ought to do something in this line here; we ought to do something to alleviate suffering, especially for children who have no means, perhaps, of

alleviating their pain ; we ought to do it in the way suggested by the reader of the last paper ; we ought to instruct our people, and while we advance theories, we ought to take measures to do that. If we say that the public in general—the parents, ought to be instructed, we ought to see that the theory is carried out ; we ought to see that the School Boards are instructed in that way—we should, at least, counsel with them. This matter should be brought before the medical profession, they have a great many patients—the same patients that we have—under their care ; they, perhaps (because they are vastly in the majority), have occasion to see more than we. And, another way would be by means of lectures in our Public Schools ; by means of appropriate articles in daily papers, or weekly papers if you please ; magazines that are read largely. That would be a very favorable way of introducing this subject. But the idea that I wish to get at is, that it ought to be done. If it is for the betterment of our profession ; for the uplifting of our profession, we ought to have hospitals in our larger cities, at least—we ought to have one in Grand Rapids, we ought to have one in Detroit where there are a great many children who would need that attention, and, as one of the speakers has suggested, on account of the ignorance that prevails our people, who ought to know better, do not, after they have been advised, give it the proper attention. It is simply because it has not been brought to their attention, perhaps, in the right way ; it ought to be done in such a way that it will be carried out. There is nothing that would so instill this matter into the minds of the people of to-day as to have this practical operation carried out. Let us have the children's teeth examined in school ; we have them examined for every other purpose. They learn every other conceivable thing—why not learn something that is practical, something that is to their own welfare and for their own good ? This is something they ought to learn—they may not think so, but it is simply because it has not been compulsory, or because it has been put to one side.

DR. HOFF : I fully sympathize with both the papers that have just been read, and with the remarks of Dr. Loeffler. He says we must do something. We can not, in the United States, compel

people to do things by law or by rule. We can persuade them to do some things, and in this way our effort will have to be made. For this reason, any efforts in the line of legislation may be slow work, but we can do something to create a public sentiment in favor of hygienic instruction in our schools and adequate supervision of the health of the inmates of our schools and institutions of various kinds. There is no question that if the dental profession was in earnest and active in this matter, that much might be done to bring about a public sentiment that would demand from our law-makers some enactments that would bring about a work of this character. If we can not accomplish this through our laws, perhaps we can induce benevolent people to establish hospitals, or we ourselves can become more benevolent than we have been. I see no reason why every dentist in Grand Rapids should not be willing to serve for one or two days in the year, or twice a year, on a committee to examine the teeth of the children in the Public Schools. I think that an examination, conducted in this way, would be much more effective than one that is made covering the entire year, or the entire six months by a single person. Perhaps it would not be so thoroughly or systematically done, but it would put the whole Public School system in your city in mind of the fact that they have teeth, and that those teeth are diseased, and that they need treatment, and many of these children would go home to their parents and tell them that the dentist had been to school to-day, and he tells us our teeth need filling, and those children would hunt up their dentist, if they were able to afford one, and if they were not they would seek out these benevolent institutions where such work might be done gratuitously. In this way it seems to me something might be done for the benefit of the public without any law and without any very great effort on the part of the practitioner. This might be done in every town where there is one dentist, or where there are two or more dentists. Every town and village in our State might be, in this way, organized into an Examining Board—voluntary, but none the less effective. If this Association were to pass a resolution calling upon the dentists of the State to take up this matter and make it a business for a year

or two at least, until we could demonstrate whether there was anything to be gained by such work.

I do not think there can be any danger of transmitting diseases of the mouth in our public institutions from the children coming in actual contact with each other; such diseases are not transmitted because of contact—they are not contagious, and the air that the children exhale, while it may contain noxious particles of various kinds, is comparatively inoffensive if the children be in reasonably good health, because this air that is exhaled (because of its specific gravity) is not again inhaled by the children immediately. It seems to me that many infectious diseases are not the result of actual contact of the children as they associate on the play-ground and with one another in their classes, but from the filthy condition of the room and the building in which the children are housed. In this climate almost every one is afflicted with catarrhal affections of varying degrees, there is more or less sputum deposited on the floor of these buildings, carrying with it more or less offensive material from diseased teeth, mouth and throat, which dries on the floor, rises in dust and contaminates the air of the whole room. The poor children are affected, but no more, perhaps, than those of the more prosperous class—the children of our best families go to the Public Schools. They are all in the same room, and all are subjected to the same conditions. Oftentimes the children of families in better circumstances are the least able to resist these disease-producing conditions, and they fall a prey to the offensive conditions that surround them more quickly than some of the poorer children who live outdoors more, or have better air in their homes, for their homes are not so close and tight, or are not kept so warm and unsanitary. As a matter of self-preservation we ought to take up this subject; we can not afford to neglect it. It seems to me that if the doctor would make his plea from this standpoint that he would make more progress, and would get more sympathy; that he would enlist a more hearty co-operation. If we want to undertake this matter we must take it up from this standpoint rather than from the legislative, for we can hope for very little from direct legislation at the present time.

We must educate the public to the necessity for it; we must educate our physicians. Our medical brethren do not appreciate this matter nearly so much as we do; they do not think of it, their attention has never been called to it. When medical men look in the mouth all they see is the tongue, they never see the teeth, they never see any of the conditions of the mouth except the tongue. If the tongue is coated, or has a certain condition, it indicates a certain systemic condition; they do not look any further; they say, "It is not my business to look after the teeth, the dentist will do that." Very many times there are conditions of the mouth that are not manifest on the tongue at all to them, but that we, as dentists, see and recognize more readily than a medical man can. The only fault with us is that we have been too modest; we see so much of these conditions that we become rather hardened. We do not all feel that it is an important condition, and perhaps we do not see it in its worst form. If we were to establish a hospital-infirmiry, where we might get at some of the poorer class of people who do not take any care of their teeth at all, perhaps we would see more of these bad conditions. I think it is high-time that something were done in this way, that some notice should be taken of the offensive and contaminating conditions of the mouths of the children in our Public Schools.

That other matter which Dr. De Vries touched upon—the loss of the first molar teeth—is one of the greatest importance. He says that he *sometimes* extracts that tooth; he seems to think that it is not a very objectionable thing to do. I have almost come to the conclusion that never should a first molar tooth be extracted, particularly in the lower jaw; it should be retained in the mouth as long as it is possible in almost every case. The headlong position of which the second molar teeth take in trying to fill up the gap left from the extraction of the first molar leaves a deformity in the articulation which is very serious. It deprives our patients not only of the use and benefit of the one tooth that is extracted, but practically the whole set of molar teeth are lost for mastication. Perfect mastication can not be performed in a mouth where the first molar teeth have been lost, and the various

forms of injury will result from such extraction. Too much importance can not be attached to early attention to this tooth and its salvation by whatever means—whether it is filling or whatever it may be—whatever can be done to prevent its decay should be done, and that right early.

DR. FOX, of Ironwood: Mr. President, these two papers have brought out thoughts that are almost inexpressible. I have been situated in a locality that has brought to mind these same thoughts that have been suggested here to-day, a great many times. I live in the iron-country, where all of the extracting of teeth has been done by the physicians, as a rule. The laboring classes there pay a dollar a month for their physician, which is deducted from their wages, and they have one physician—the mining physician. The people there are of all nationalities that are on the face of the globe, and it is very humiliating to a dentist to examine the mouths of some of those people who have lived in the mining district for many years, and to see the deformities and the wholesale slaughter of teeth that has been carried on in the copper and iron-districts of Michigan.

DR. McCLOUD, of Ironwood, was on the Board of Education and I saw the necessity of some movement of this kind, and I called attention to the fact some two years and a half ago. The School Board had a meeting, and at that meeting they asked me if I would take it upon myself to deliver two lectures during each term of school to the children on the care of teeth. I accepted, and told the doctor that I would gladly do it for the benefit of those suffering little children, as has been mentioned in these valuable papers 18th P.M.S. that have been read here. Dr. McCloud also made arrangements with me to do the extracting for the hospital, and he would give his patient a note to me, and I have tried to do a missionary work in the way of educating the people to take care of their teeth; and when these papers were read I was glad to know that others were thinking about this matter, but I hope there are not many of you placed in the same position that I am, because if you are you will turn away in shame from extracting many times, and I only hope that in every county, in every town in the State of Michigan, and all the States, they

will adopt some measure for the care of the teeth in the Public Schools as well as all institutions controlled by public charity and otherwise.

DR. HARVEY, of Battle Creek: I think that the members of this body are all representative men of the communities in which they reside, they all have more or less influence with the municipal officers of the governments of the towns and cities in which they live, and the results to be obtained through any efforts which we might propose to make, would depend upon individual effort to a very large extent; yet I believe that there should be some decided action by this body in the way of resolutions, that the individual dentists might have something to refer to that would give weight to his arguments. We can go before a School Board and show the benefits that could be derived from the course to be pursued, as has been outlined here, yet it would give more weight to it if we had some action taken by this Association.

I, for the last two years, have had upon my roll a membership of two hundred worthy-poor children whose teeth I have cared for; every one of those children come to my office twice a year; about one hundred and twenty-five of them are from a charitable institution. I do the work free, and the condition of their health generally has improved very much, although their medical care is great. I instruct these children how to clean their teeth, and with that, I take a great deal of pains, and I see good results from my efforts.

I trust that there will be some decided action taken before we adjourn finally.

DR. ROOT, of Hart: A short time ago I changed from a city to a country-practice, and while in the city I refused to extract teeth that I could save, but I have changed my mind; I am one here to-day to say that I extract teeth, and the main reason why I do it is, that if they can not afford to pay me I can not afford to work upon them. We may talk upon theory, but the practical part of it is: What can we do for the patients, and what can the patients do for us?

Now, take a six-year-old molar that comes to you, and they can not afford to have you treat it. Can you go ahead and do it

out of your own pocket? I don't know how it is with the rest of the people, it takes about all I can do to get around without throwing in some extra time. I used to think that I was willing to give quite a good deal of time to saving people's teeth, and if anybody came into the office and didn't have the money it was all right. I would go ahead and perform the operation because I thought they ought to save their teeth; that was the feeling I had when I left college. We were taught that we should take particular pains in saving all the teeth that came to us, and it was a kind of humanity-scheme that we were going into, but I realized after I got outside for a while that we are all working for a living.

In this city I had the great privilege of working under this first idea that came into my head while in college, and I filled the teeth of quite a few people, spent a good deal of time on them; they were poor, and I took my chances, because their teeth looked bad and I thought I ought to do it. Another thing: I said, Why I can save this tooth for you, and I won't pull it! And they would go away. Now, what is the practical use of all this? We have got to educate these people before we can do this; we have got to educate every one of them—not only to come to us twice a year and have their teeth examined, but to pay properly. You have all noticed in your practice that the majority of the children are, in the beginning, afraid of you. I have had quite a few cases come to me where the little child was perhaps not two years old, and was greatly frightened when it came into the office, just from what it had heard the parents say, and wept all the time it was there. Now, if these children were educated in the first place, even if they were poor, if they were not told at home how it was going to hurt them, they would naturally want to come to you and have their teeth taken care of, whether they were poor or not. They will work around and earn the money to do it. In the place where I am I have quite a few of the boys around town whose parents are poor, and all of them are doing job work and every little thing they can do to have their teeth taken care of, because they have been educated to it and know that it is right.

I am not in favor of a hospital for the benefit of the poor class in the dental line. I don't think it is right; it seems to me no one will appreciate a thing you do for them, unless they do something themselves in return for it. You hardly ever find people so poor in this country but what they can give you a little something for taking care of their teeth.

I was very much interested in the paper presented by Doctor Adams, and agreed in many points with it. And while we are theorizing here, how shall we do this; shouldn't we get some practical plan as to how this work should be accomplished? Take a child six or seven years of age, with temporary teeth, where there are little abscesses breaking out in the gums and they come to you. What would be the advice of the average dentist here, as to what to do with those—extract them? They are past filling; there is no use filling them. What would you do, extract them and let the place go together, or leave them and let them keep on abscessing?

DR. WHITE, of Benton Harbor: Dr. Adams' paper I have listened to with very much interest, and also that of my brother from Holland, and Dr. Hoff's remarks. I believe that we are touching the key-note when we are talking about starting in at two years old and educating the children to take care of their teeth. I do not think that we would lose that six-year-old molar very many times if we could get hold of the child at two years of age, as suggested by Dr. Adams, and take care of that child's teeth twice a year until he is fourteen years of age.

I believe that this talk and these papers are in the right direction, and that if we could spare at least one hour in the week to devote to the care of the teeth of poor children it would be a benefit to them and an honor to our profession.

DR. HARVEY: I wish to reply to Dr. Root. I think he reckons without his host when he says that we do not get pay for doing work for the worthy-poor. I do not think that there is any dentist who can do work for the worthy-poor and not be rewarded for it, and he doesn't wait until he gets up above either. I know that I have not, and I know that I can spend a great deal of my time in that way, and I can be rewarded for it in a pecuniary way, though I do not look for it.

DR. HOFF: Dr. Root's remark brings an idea to mind that might be fruitful also. He says that he has not time to give to this kind of work; I presume there are a great many dentists who feel as though every hour and every minute of their time was worth money to them, and so it is. Many of us work after hours; we work more than ten hours a day, but there is help to be had; there is help that is unemployed; there is help that would be glad to serve in some capacity in this connection. We have, for instance, in the University every year one hundred and fifty or more undergraduate students who have a three months' vacation to spend, and there is not a week but what I have from one to two or three, or perhaps a half a dozen inquiries as to whether I know of any dentist who needs help; they want to get into an office where they can get office-experience; they want to learn something that no dental college—I do not care how thoroughly equipped or organized it is—can teach. We can not teach practice of dentistry as dentistry is practiced in an office, and students know this, and all of you know it. Students need this perhaps more than anything else, they need some kind of office-experience, and it seems to me that here is an opportunity where these undergraduates, and, perhaps, some of the recent graduates, can be utilized to advantage. Some of you gentlemen who have more to do than you can attend to can afford to pay these men something; you can, at least, afford to pay their board, or if you can not do that, you can take them into your home and take care of them in the summer during the three, or five, or six months that they are out of college. Many of them would like some place where they could go and simply get their board or their living and have an opportunity of doing some kind of dental work and getting an office-experience, something that would be valuable to them and which they could use when they get out into practice. You could use them upon the work of these poor children, and they can do their work for you; they can polish your rubber-plates just as well as you can; they can grind teeth just as well as you can; they can vulcanize teeth; they can keep your books; they can collect your bills, and occasionally they can clean teeth for these little ones just as well, and

if they don't know how, in an hour's time, or two hour's time well spent to instruct them how to clean these teeth thoroughly and you can utilize them, and you can do these little ones a favor and at the same time do these young men a greater favor, perhaps, than the children, and you will relieve yourselves of much of the drudgery of your office business. These young men would all be glad to do it, they are strong and vigorous and they are anxious to work, and they want places to work, but as it is now they go out into the harvest-field or they go to selling books; some of them loaf all summer and have nothing to do, but every one of them would be glad to go into an office where he can be useful; somewhere where he could learn something; somewhere where he could get an idea of how business is conducted in the dental practice; how a dentist handles patients—that is something we can not teach in a dental college. We handle patients in the infirmary in a wholesale way, and not in a retail way. You can take these young men into your offices and do them a service, and it seems to me you can utilize them in this way and do them a favor, and there are many things in this subject of the treatment of children's teeth wherein you can utilize them just as well as you can use yourselves, and I hope we will have more inquiries at the University and at the Detroit College for students to work in your offices and to assist about the office in the future.

DR. PORTER, Petoskey: Mr. President and Gentlemen—I can not see how it is possible for those of us who reside in places, for instance, like Petoskey, of five or six thousand inhabitants, to do anything else than partially, at least, charitable work. We can not help it. We have done a great deal of it in Petoskey, and as has been mentioned, a great deal of that kind of work may be done by an assistant. I happen to be fortunate enough to have a very good one, and a young lady assistant also, who is very efficient, after having been properly trained. It seems to me that in towns of that size we can not help doing a great deal of charitable work, if we do our work conscientiously, as we must do it in our profession if we live up to what we ought to be. There are, as has been mentioned, a great many poor people whose children suffer; for instance, I know of more

than one widow in our town who supports a family of, anywhere, from three to eight children, and those children, the majority of them, are small, from two years up to eight or ten, and it is impossible, as you well know, for such people to pay for anything that is not positively necessary, in fact, their medical bills have to go unpaid unless they are paid in some charitable way. Of course, there are provisions for medical assistance in almost every town and State in the Union, but not for any dental assistance. There is a deficiency that we can see which the people at large do not see. The course that I have endeavored to take in our own town has been to educate the people, as has been mentioned, through the public schools by a lecture occasionally, and the publishers of daily and weekly papers are very willing to publish short articles occasionally, and it is not necessary to monopolize the thing, or have our names published at all, but only to put the matter before the people so as to gradually educate them to what we think they ought to be in order to appreciate the situation.

DR. A. W. DIACK, Detroit: It seems to me that this subject is a great deal deeper than anything we have touched upon during this discussion; in fact, so deep that we can not enter into it any more than we have done or do it as well as we should like. In the practical application of the theories that have been brought out, in so far as they are applicable to the State of Michigan, it seems to me that spreading this information among the poor children is going to be very slow indeed, and it is not going to be accomplished through any legislative acts which the dental society might cause to be enacted; it is to come rather through the personal influence of the dentists, through the charitable organizations, and then through an organization which, I think, needs education in dentistry almost as much as any other organization, namely, the medical profession. I think there is a great deal of influence in the profession, and if we could once direct it to pay proper attention to the condition of the teeth, it would be our most powerful ally in this educational effort.

And in order to have some standing or some authority behind us as persons or as practitioners of dentistry, in this matter,

I think it would be proper for this society to pass resolutions to the effect that there should be some legislative enactment or, at least, that some action should be taken looking to the establishment of such an act, and in that way follow out the idea brought forward by Dr. Harvey. I think that is the best manner in which we can arrive at a definite conclusion of the matter.

DR. HOFF: Before we adjourn I move that the chair appoint a committee of five to draft resolutions in accordance with the sentiment of this meeting as expressed this afternoon and present them tomorrow afternoon at 4:30 P. M., at our business meeting, for the consideration of this body.

DR. DIACK: If Dr. Hoff will accept an amendment to that motion, I move that a permanent committee on resolutions be appointed, as I think, in looking over the programme, there will be other questions requiring resolutions to be passed, and if that committee would be made permanent during this session, I think, it would be a little more in order, and would facilitate business.

The motion of Dr. Diack was carried.

The meeting here adjourned.

EVENING SESSION—JUNE 10, 1896.

The meeting was called to order by President House.

The minutes of the previous session were read by the Secretary, and approved.

The Chair appointed, as a Committee on Resolutions, Doctors Field, Parker, Loeffler, Harvey and Diack.

A paper on "The Absorption of the Root of the Temporary Teeth," by Dr. A. W. Haidle, of Detroit, was here read by Dr. Diack. (See August REGISTER, page 388.)

DR. N. S. HOFF opened the discussion of the above paper as follows:

MR. PRESIDENT AND GENTLEMEN: I feel myself wholly unable to discuss this paper intelligently and to any purpose, and you will see now the reason why I was anxious to have Dr. Taft here when this paper was read; Dr. Taft has done some work along this line, and has some ideas about it that would be worth a great deal more than anything I can say.

In the first place, I have to say that I can not agree with

the position that the paper has taken. I don't know that I ought to take this position; I certainly can not take it from any definite knowledge, because I have done little or no experimental work in this direction, but, on general principles, I do not see how the process of absorption of the roots of the teeth can be accomplished in the manner indicated in the paper. The old theory or the commonly accepted theory that acids play an important part in the removal of the roots of the temporary teeth it seems to me is a rational one. The great difficulty, of course, is for us to make any experiments that will identify the acid and show its connection with the process. It is exceedingly difficult to make experiments in the living tissues, particularly of a human being. We can not experiment upon each other at liberty, and particularly in this connection, and there is no opportunity in the animal world for making these experiments with any degree of accuracy, and it is almost impossible for us to determine what the nature of the solvent is in this connection.

The chief reason why I conclude that it must be an acid is that we have no other solvents that will produce such rapid solution of hard, bony structures, particularly such structures as the enamel of the teeth, or even the bone which is more soluble. We have no solvent which will produce a similar amount of solution in the same time. This solution of the roots of the temporary teeth is often very rapid in its progress, and I don't know of any solvent that will produce this solution in the same way and to the same extent and with the same rapidity. I am free to say that I do not know how this acid is generated. It may be the result of the continued irritation of the growth of the new tooth in the tissues, causing destruction of the soft tissues which underlie the tooth, and in this way a viscid acid secretion may be generated in the cells which surround the tooth, which sets up a fermentative or putrefactive process, in which the acid is formed. In what is termed "an acid condition," where the acid is newly-generated, it is more active in dissolving the bone, and in this form no one would question its power to act upon the lime-salts of the tooth; of course it would not dissolve the matrix, the organic matrix; that would have to be absorbed by the ab-

sorbent vessels around about the tooth, and we can readily explain this from similar digestive process in other parts of the body.

Now, the other theories that have been advocated and advanced it seems to me need very little consideration, because we all know that it is practically impossible to dissolve bone, ivory, or bony structure, such as we have in the root of a tooth, in any of the ordinary fluids of the body. These fluids are alkaline; sometimes they have a slight acid reaction in diseased conditions, but ordinarily they are alkaline, but not sufficiently alkaline at any time to produce any very great absorption of bone, and particularly of the root of a tooth, so I can not see that there is any fluid in the tissues—in the circulation or in the tissues themselves—that it would ever be possible to dissolve a tooth in.

The effect of pressure from a growing tooth—I can not see either how that would have anything whatever to do with the absorption. It might cause considerable congestion, and perhaps inflammation around about the tooth, and we might have a hyper-nutritive condition as a result of the increased blood-supply: that, possibly, might have an excessive absorbent quality, but not sufficient, it seems to me, to account for the amount of solution that occurs.

Now as to this theory that Dr. Haidle advances, that the solution of the root of the tooth is due to the fact that some kind of a digestive fluid is formed or is generated in this tissue and attacks the tooth and digests it, I can not very well harmonize this with the ordinary digestive processes. If we undertake to account for the process on this theory, we must have organs that are capable of secreting a digestive fluid, a fluid that will digest the bone or the root of a tooth. We have organized tissue about the teeth, but this little carneous body that we all recognize and see in the root of these dissolving teeth is not an organized structure at all, it is simply a change of the connective-tissue cells, a collection of them in which they are oftentimes of a pathological condition or form rather than of a physiological form, but they certainly are not organized in such a way that they would secrete a ferment such as is secreted by the glands of the
6 1 tary canal.

In the next place, we know there is no organized body of this kind in this tissue, because of the fact that when we make sections of this tissue we do not find any nerve supply, there is no nervous mechanism; there are sensitive nerves, of course, distributed in that system, and there may be motor-nerves distributed to the blood-vessels, but there are none that can be traced to these different cells as Dr. Black has differentiated them. He has simply given them different names, according to the functions which they evidently perform, but there is no difference in the histiological construction of them so far as I have been able to determine from his description of them. I think they are simply a modification of the same kind of cells, or the same kind of tissue, and because they happen to be in a location where a certain process takes place, he gives them a certain name. They certainly have no such organization as we find in the peptic glands which secrete that digestive fluid, or in the other glands of the stomach or the other digestive organs, and there is no nervous mechanism there that can be stimulated to excite these glands to secrete a digestive fluid; and if there was any ordinary digesting fluid that we are familiar with in the digesting process would not be able to digest the tooth or roots of a tooth, or the hard, bony structure of the root of a tooth as rapidly as we know it takes place in the absorption of these temporary or deciduous teeth.

Dr. Haidle seems to be of the opinion that there is a ferment secreted here, not an organized ferment of a putrefactive kind, but a digestive ferment—something that sets up a fermentation in these tissues. I can not see how this analogy can be reconciled here. He takes his idea, I think, largely from the fact that Dr. Miller found in his investigations, in his work on the manner in which the teeth decay, that an acid was the result of a putrefactive influence that takes place there. In this condition we do not have putrefaction, we do not have suppuration, we may have a certain kind of suppuration, but it never goes on to putrefaction, and we never have any cause for the formation of acid which will cause a solution of the tooth such as is produced in the decay of a tooth—we do not have the same phenomena. We

do not find the tooth absorbed in the same way that decay of the tooth is produced. We do not have what is sometimes called or recognized as the white decay or the rapid decay or the brown decay, or the black decay—those various kinds of decay that we used to think came as the result of the kind of acid that was generated and caused the solution of the tooth; we do not have any of this phenomena. Of course this condition is quite similar to that decay of the tooth or that abrasion of the tooth which occurs under the influence of lactic acid, or those abrasions of the teeth that we sometimes find cut across the faces of the teeth, and we have attributed this kind of abrasion or decay to the lactic acid that is generated in the mouth, but we are not certain; and Dr. Miller himself is not certain that that particular variety of decay is the result of fermentation.

So I can not see, in looking at this subject from my standpoint, that there can be any special, organized body or glands there that would secrete any formation that would have the power or the ability to absorb the roots of the teeth in that way. It seems more reasonable to me and more rational that it is the result of the formation of an acid in the fermentative process.

Fortunately, I had a little patient come in a few days ago with two or three temporary teeth which I removed, and this carneous body came away with one of them, in a mass. I gave it to our histologist to make some slides for me that I might see just what that body is, to see if there was anything like an organic tissue, but he was very busy, and he didn't get the slides made for me, so I didn't have an opportunity to examine them, but he assured me that he did not think that there could be any special organ in that tissue. He said he thought it was very improbable, and so I think myself that there is no special organ there that will eliminate a peculiar ferment, for it must be peculiar; it must be different from any of the digestive ferments that we know anything about that would cause this solution of the tooth. So, for lack of evidence, I, for one, am compelled to believe and hold to the old idea that it must be an acid of some kind. Just how that acid is generated, or what kind of an acid it is, I don't know, and this idea, while it is new, is incapable of demonstration. I do not

see how it can be demonstrated, or how we can get any data on such a hypothesis. It seems to me it must be clearly hypothetical, and that, therefore, we can not prove it.

DR. CORBIN, St. Johns: While I have never made any experiments to determine the question at issue, I have had occasion to observe many times conditions that might throw some light on the question—they directed by thoughts and conclusions in a certain channel. We all know that where the vitality of the pulp is destroyed in the permanent teeth, so-called, where the crowns have been rotted away for a long term of years, that the roots grow shorter, that the roots will be absorbed from the apex end, and they certainly will, in the course of years, be thrown entirely out of the jaw by that process, if left alone in healthful jaws. I think it is the physiological condition that does the work, and that, of course, is independent of pressure. We have all seen the deciduous teeth in the mouths of people thirty, forty or fifty years old—probably there is not a dentist here of ten year's practice who has not seen it—it is a very common thing to see the baby teeth in the mouths of adults in the place of the teeth that should have replaced them, and by the side of the teeth that should have replaced them. I have seen a great many cases, in my almost forty year's experience, of the temporary canines, and sometimes bicuspid, standing exactly in line with the other teeth of the arch, more especially in the lower jaw, and sometimes in the upper jaw, and the tooth that should have replaced them entirely missing—never had made their appearance at all.

It is only a few years since this association convened at Ann Arbor, and there are doubtless many persons here now who were present then and remember something about a case of a good deal of interest, and that had given much trouble to the physicians of a family in Pontiac—a woman thirty or forty years old. It was then transferred to the care and charge and investigation of some dentists in Detroit, and the woman was finally brought to Ann Arbor and presented at the session held there of this association, and various dentists present examined the left side of the lower jaw back; the third molar, I think, had never

made its appearance, and there had been trouble, and it was finally diagnosed that it had never been erupted, by a number of dentists, and some one, there, in the presence of the association, succeeded in extracting that tooth. Now, there was a case that was forty years old and had grown to full size and had never been erupted nor made its appearance at the surface of the gum.

I think, in cases where I have seen the temporary teeth standing exactly in line with the permanent teeth of the second set, and in place of the tooth that had never made its appearance, that that tooth doubtless had grown in the wrong direction, and the deciduous tooth had remained, while I used to think the reason it remained was because it had not been pressed upon by the growth of the second set of teeth, and, hence, absorption had not occurred. Now, in the case to which I alluded a moment ago, where these deciduous teeth stand, in addition to all the second set of teeth, exactly in line, or nearly in line, the permanent tooth has been deflected from its natural course and grown up closely in contact by the side of this deciduous tooth. In the mouths of people thirty or forty years old, and younger, twenty or twenty-five years old, I have had occasion to extract such teeth under similar circumstances and by pressure draw back the permanent tooth into its proper place, and wherever I have extracted these teeth I have found the absorption, if they were closely in contact, of the whole length of the roots of the deciduous tooth, one-half of it, one-third of it, or two-thirds of it, just simply to give place to that portion of the permanent tooth that came up closely in contact with it or had crowded it; the absorption had taken place, not from the end entirely, but from the side of the whole length of the root, apparently in response to the pressure of the growth of the permanent tooth.

We do know that the roots of the permanent teeth are absorbed and shortened and the acid theory might account for the destruction of the tooth if that destruction commenced at the surface of the gum, if it commenced where acid could be applied, but I can not see how acid can be applied to the end of the roots of the permanent teeth; I can not see how it can be ap-

plied to the ends of the roots of baby teeth in healthful condition, the surrounding soft parts being protected.

DR. HOFF: It is generated there—it is not applied.

DR. CORBIN: I am not prepared to dispute that, but then it is a little difficult for me to see how the acid can be generated and applied down in the gum, in the midst of a healthful circulation. It may be, but I don't know how, and almost invariably you will find, I think—all of you who will refresh your recollection on the subject—that where you have seen the deciduous teeth remaining until late in life it is where the permanent teeth have never put in an appearance, where either the germ did not exist or did not grow, or grew in the wrong direction and where there was no pressure in consequence; at least that has been in accordance with my observations.

DR. LOEFFLER, of Saginaw: I have given this subject some study, and I am inclined to take the position that Dr. Corbin has. It seems to me that we might theorize on this subject as well as with any other subject that can only be handled in that way. We know that in various parts of the body, by pressure certain things are absorbed; we know that the root of the permanent tooth, or of the temporary tooth for that matter, is absorbed in case of abscesses. Now what is it that causes the absorption in that case? Most of us understand that it is the pressure caused by the formation of pus in that part. Now, if it is pressure in that case, is it not barely possible that the pressure caused by the growth of the permanent tooth causes the absorption of the root, due to the fact that we have enamel in contact with the dentine or the cementum of the root, that is, wouldn't it be fair to assume this? As the last speaker has intimated we find, and I have found it that way in many cases, that when, for any reason, the permanent tooth does not come, or is not directly under the root of the temporary tooth, we find that this absorption takes place along the side, all the way along, and perhaps one half or one-third or even two-thirds of that tooth is absorbed. Now, is it not barely possible on account of the growth in the one case, at the expense of the structure before it—and it may, in this case, be a physiological process nevertheless, that on ac-

count of this pressure, as I say, the tooth before it is absorbed. And, as has also been mentioned, where we do not find the temporary tooth, or where the permanent tooth is missing, the root of the temporary tooth is in every case left as it is, we do find any absorption. Now why it should be that, in this case, the carneous body or whatever term it may have is wanting in that case, can not be accounted for. Therefore, it seems to me that this theory would, at any rate, be one that ought to have a place.

DR. DIACK, of Detroit: When Dr. Haidle asked me to read his paper I was very much inclined to the acid theory regarding this phenomena, but since reading it and looking over the subject I have come to the conclusion that so far as I can see, with the observations that I have made, that he has, really, to my mind, assumed the only rational solution to this problem.

Regarding the acid theory: To my mind I can not reconcile it with the fact that the serum of the blood in which this dissolution of the temporary roots take place is alkaline; any acid which comes in contact with the alkalinity of the blood must be overcome by it; you can not have an acid acting on any substance, such as the roots of the temporary teeth is, in an alkaline form.

That, I think, disposes of the acid theory.

Regarding the supposition that an acid is formed, to my mind, it seems hardly necessary to go outside the natural law that we see in existence in the human body. The only acid we have secreted for any physiological function, not for any function of excretion, such as uric acid and the other acids that are thrown off, but the acid that is secreted for a physiological function is the hydrochloric acid of the stomach, and that acts only in a secondary manner, it assists the pepsin—the pepsin can act only in an acid solution. Therefore, bringing up the idea of another secretion of an acid for the mere absorption of these temporary roots, it seems to me, is going out of the way. I see no reason for it.

Dr. Hoff has spoken of organs set aside for the absorption. I think that this giant cell that Dr. Black has mentioned, the myloid cell and the large cell with the many nuclei, can be taken as the digestive organ; we see its presence in every absorption of tissue that takes place in the body.

In so far as the nervous influence is concerned, the mere fact that we have not yet discovered, microscopically, the presence of any nerve running to this part does not, in my mind, establish the fact that the theory of the nerve influence is wrong, because in the foetus we can not discern, with the microscope, any nerve influence acting upon the fundamental cells of the foetus; I think that the same thing takes place there; it is merely physiological, and is governed by a power that we have no idea of whatever.

Then, again, in the absorption or the digestion, as we have been pleased to term it, in the roots of the temporary teeth, it seems to me there can be a digestive fluid formed by this organ, as I have termed it, that would be capable of dissolving the lime salts in the root. The lime salts, of course, consisting of the calcium carbonate and the other salts, if it can not be brought to the tooth in solution there must surely be some cell which will cause it to be in solution in the first place before it can be absorbed into the body, and if that is the case, the opposite can also be true. So that we can have these multi-nucleated cells absorbing this calcium carbonate and other mineral salts from the dentine and from the cementum. That, to my mind, is satisfactory.

Then, again, another argument for the idea or theory that it is a digestive process that takes place rather than a solvent one. A glance at the shape of the root of a temporary tooth I think will satisfy any one—at least it satisfies me—that it is due to digestion rather than solution by an acid, because the part of the dentine that immediately surrounds the living pulp in a temporary tooth always seems to be more persistent, it has more resistant power to the process, whatever it is, that is going on; and you all know that while any living organism may be dissolved by the gastric juices, that it takes a longer time to digest a living tissue than it does one that is not living, whereas if an acid were acting it would be acting as an acid, and would have no effect whatever and there would be no difference in effect whatever, whether it were on a dead or living tissue; it would be calcium carbonate just the same, and the acid would be working on it just the same—you would have the ordinary chemical reaction.

In regard to the presence of this carneous body, I think that it is nothing more or less than the result of irritation and stimulation, a hypertrophy of the tissues, or the giant cells in contact with the temporary teeth. To my mind, this idea brought out by Dr. Haidle is more satisfactory than the acid theory.

DR. PORTER: There is another thing that is a little unexplainable, and that is the want of effect upon the roots of the deciduous teeth, providing the crowns of such teeth decay by either the acid or digestive theory. That is something that has always been a puzzle to me and I suppose is to all of us, why the roots of the deciduous teeth are not affected by either of these theories if the crown of the tooth be decayed, and also (which complicates it even more) if we fill the roots of the deciduous teeth, and in that way keep the crown perfect, that is, keep them from further decay, the roots of the deciduous teeth will, after that, absorb as naturally apparently as they would had the pulp remained alive.

Personal Observations of the Developement of Dentistry and Dental Legislation in Michigan.

BY G. E. CORBIN, M. D., D. D. S.

History, with names and dates omitted, would be tame and valueless.

As this article is to be a brief history of personal observations, names and dates are a necessity, but in their use I hereby disclaim all intent or desire to deal in any terms that may, in any way, be construed or misconstrued as personalities. While pursuing the study of medicine at the University of Michigan in the autumn of 1853, I found myself at the same boarding-house with one Seth A. Gerry. In his side coat pocket carried a small roll of instruments, consisting of a few scalers, excavators, hand-pluggers and a turnkey. With these, he said, he had easily and rapidly earned money enough to pay the expenses of a medical education—to which he aspired.

He asserted, that with ten dollars' worth of instruments, and the information that he could impart in one week's time—and that even without encroaching upon lecture-hours—I could go to small towns, among strangers, and earn from \$5 to \$15 per day without any sort of trouble. Though I had already put in one full year at hard study, including one course of lectures, I expressed the opinion that I was too deficient in the knowledge of anatomy, physiology, pathology, etc., to engage in such a practice. He said that, with a hammer, I could crack open and inspect a few teeth, and in twenty minutes learn all the anatomy necessary. His kindness of heart can be better understood when 'tis known that all he proposed to charge for the week's instruction was fifty dollars. He found the medical course too laborious, dropped out, and resumed the practice of the profession he acquired so easily.

A little later I made the acquaintance of Chas. H. Sackrider, a very bright and genial student, who, after graduation, practiced the profession of medicine and surgery very successfully for many years at Mason, in Ingham County. Sackrider had previously conducted a lucrative practice of dentistry in Canada, and had the money to show for it.

Think of the change in Canadian laws since that date! Now no one is permitted to practice in Ontario until he has passed a satisfactory examination before its Board of Examiners. More than that, no one is permitted to take the examination unless he be a graduate of the Royal College of Dental Surgeons of Ontario. However well qualified, foreigners, evidently, are not wanted there. A large number of Canadians, however, both graduates and non-graduates, find it convenient to locate in Michigan, where, both from experience and observation, they have learned that they will not be likely to be seriously annoyed either by examinations or dental laws.

In the "early fifties" one A. J. Wiggins located in Chelsea for the practice of medicine, and stocked his office liberally for individual prescribing. A few years afterward he exchanged the remnants of his drugs for the unused and rusty dental instruments owned by Dr. Sackrider. The possession of these instruments

caused Dr. Wiggins to travel about the country, for a time, extracting and filling teeth, and then he called himself a dentist. The knowledge thus acquired caused him to engage quite extensively in the occupation of manufacturing dentists at \$50 per head. The time required for this transformation varied from one to three weeks, according to the adaptability of the subject, or more accurately, the doctor's ability and success in making the collection. Many so-called dentists were thus started out in the business.

An occasional graduate from the dental colleges at Cincinnati, Baltimore and Philadelphia, and able and conscientious practitioners from other sources, located in the State. There was no law to prevent and no law to regulate. Then, as now, there were good, bad and indifferent—and worse than either.

With no dental school in the State, it was quite the custom for representative dentists to receive in their offices conscientious young men for instruction, who were obligated to remain for a specific time, usually two years. In these various ways the ranks of the profession were augmented.

In 1853 the idea of mounting teeth upon a rubber plate was first successfully accomplished. The process was easily learned. It was described in a printed circular which accompanied each vulcanizer sold. This mode of advertising vulcanizers was a success. Prior to this date each plate of teeth mounted on a gold base had cost \$100, or more. The persons who could construct really meritorious gold plates were not numerous. Those who were proficient in the process of manufacturing continuous gum-work were less numerous.

In those days the replacing of lost teeth involved much expense. More than this, the mutilation in the loss of natural teeth was mortifying, humiliating, so that dentists were enjoined to the strictest secrecy.

Alas! how changed! Rubber plates of all possible grades of merit could be furnished at less than one-half the price of gold ones and still return better pay for the labor expended. This state of affairs speedily flooded the entire country with young, aspiring, bungling mechanics, who resorted to every means pos-

sible to induce human beings to part with good, natural teeth, that they (the mechanics) might get pay for inserting bungling substitutes.

In the profession of dentistry, as in that of every other respectable avenue of life, are to be found conscientious and capable men. At the date now under discussion these men stood aghast! Their sympathies and sorrows were aroused by a knowledge of the impositions practiced upon an unsuspecting community. Their professional pride was shocked at having such unprofessional conduct charged up to an honorable and very necessary profession. What was to be done? What could be done? It was wisely decided that by united action something could be accomplished in the direction of educating the community to a better understanding of the facts in the case. To this end, and for the purpose of mutual benefit in the exchange of ideas, the Michigan State Dental Association was organized; and it has rendered much valuable service. Largely, though not entirely through its influence, the dental department of the University of Michigan was established.

No government, founded on the principle of universal suffrage, can long survive, unless the votes be intelligently cast. "A government of the people, for the people, by the people," necessarily implies and carries with it a system of popular, public education.

There is scarcely a dissenting voice upon the question of compulsory education in the early years of childhood. Upon the question of taxation of all the property in the State to aid in the education of professional men, strong arguments may be advanced both *pro* and *con*, but the State of Michigan long since decided that question for herself, and in the affirmative. She has provided the best of facilities for the education of her teachers, lawyers, doctors, pharmacists, dentists and others. Michigan yearly expends a large amount of money that her citizens, one and all, from one end of the State to the other may avail themselves of the best of talent in the directions mentioned.

That these citizens may not be imposed upon by incompetent

pretenders, legislation to this end has been found necessary. Teachers, lawyers, pharmacists and others must all pass required examinations before they can legally practice their respective callings. The first law passed "to regulate the practice of dentistry in the State of Michigan" was Act No. 140, Laws of 1883. This law provided for a Board of Examiners, but it admitted to registration all who were then in practice in this State, on filing an affidavit to that effect, and the payment of a registration fee of 25 cents. It also legalized the practice of all persons holding "diplomas from the Faculty of any reputable dental college, duly incorporated under the laws of this or some other State of the United States."

Under the wording of this law the possession of a diploma from a college of the very shortest term and lowest grade, legalized the practice of the holder regardless even of registration.

In those days there was a regularly-chartered dental college at Delevan, Wisconsin, conducted by one Morrison, that issued diplomas (to start with) at \$12.50 each, express charges prepaid. Later, as business flourished, the price was raised to \$25.00 each, showing a great financial advantage to those who applied early. From this college, that sold diplomas and delivered them by express, without any attendance whatever, up to those requiring attendance of three full years of nine full months each, upon a most complete and thorough curriculum, there were colleges of almost every conceivable intermediate grade, whose diplomas, under the first dental Act, placed all alike upon an equality before the public.

Another, and a serious defect in the original act, was in the language that permitted the Board to collect the prescribed fee for examinations from successful applicants only. The incompetent ones required the most time and paid nothing, so that for several years the receipts were not sufficient to meet the unavoidable expenses, and much gratuitous work was necessarily done by the Board. Defective as this first act was, much valuable service was rendered under it in the direction of organization, examination and registration. Especially to cure these two last-named serious defects the law was amended in 1891 by the alteration of

Sections 1, 7 and 9, and the addition of two new sections. As thus amended the law very properly established and defined a standard of attainment to be required by the Board.

The laws of thirteen States of the Union recognize no diplomas whatever, but exact examinations of all applicants. Several of the States, like Ontario, exclude all from examinations even, unless they be graduates. Not so with Michigan; she is much more generous. All applicants are admitted to examination, and all who are qualified are sure to be licensed and registered; but the unqualified, unlicensed, illegal practitioners in the State are not sure to be prosecuted. This fact has become too well known. None but dentists are at all likely to know; very few but dentists have any knowledge of the process by which they *might* know who are the qualified, registered, legal practitioners, and who are not. For this reason none but dentists can reasonably be expected to enter complaints and enforce prosecutions. Nowhere in the law is there any other provision for its enforcement.

In the enactment of this law the people of the State of Michigan very evidently expected this much of the dental profession. 'Tis asking none too much. Unfortunately, however, what is everybody's business is generally conceded to be nobody's business. Each waits, and expects of his neighbor what he is not quite willing to do himself. Notwithstanding this general feeling much has been done under this law. I have no way of ascertaining the total number of prosecutions had under its provisions, but it may be profitable to briefly review a few of them: Wm. F. Alton was arrested at Imlay City, taken to Lapeer, and on January 7, 1890, tried, convicted and fined \$25 for the illegal practice of dentistry. He paid the fine, returned to Imlay City and to his practice. For this reason, on March 27, 1891, he was again tried and convicted, and a second fine of \$30 was inflicted. This closed his practice in the county of Lapeer, but whether he resumed practice elsewhere in the State I am not advised.

In the month of February, 1894, in the city of Grand Rapids, T. S. Hudson was arraigned on the charge of illegally practicing dentistry. An adjournment was procured, during which he

secured a "temporary license" from a member of the State Board of Examiners in Dentistry, which, of course, quashed the suit. This was certainly very unfortunate—unfortunate for law and justice; unfortunate for those who were trying to enforce a wise and just law; unfortunate for the "people of the State of Michigan," who, through their representatives, enacted the law; unfortunate for T. S. Hudson himself; unfortunate for any man to be sustained or encouraged in evading, violating or defying any just law of his country or the State; unfortunate for the Board of Examiners in Dentistry; unfortunate for the member issuing the temporary license; unfortunate for all the persons who conspired in the misrepresentation and deception practiced upon him to procure this "temporary license"; unfortunate for a man who is distinguished for kindness of heart and unswerving fidelity to duty.

I have been informed, on the best authority, that when E. B. Crandell, of this city (Grand Rapids), was put on trial for illegally practicing dentistry, he was immediately dismissed or discharged by the judge at the request of his attorney, simply and solely for the reason that the very first question propounded to the complaining witness elicited the fact that he (the witness) was not personally acquainted with said Crandell! Reflect on that fact for a moment, please! Can you think of anything more preposterous? Where is there another judge on earth who would be willing to put himself on record for such a ruling? Think of a ruling, a precedent that will prevent you from entering complaint against a burglar; against a man for committing theft, arson or any other crime or misdemeanor, unless the offender happens to be a personal acquaintance! How ridiculously absurd!

I have consulted a competent lawyer on that subject. He informs me that statutory law requires a justice to issue a warrant, on complaint, whenever accompanied by sufficient evidence from whatever source, by whomsoever produced, to convince him that there is a reasonable probability of the guilt of the party complained of; that is, enough to start proceedings to determine the fact by a jury on presentation of the evidence.

I here quote from "Tiffany's Criminal Law," fourth edition (1389), page 36. He there says:

“In general, every man is, of common right, entitled to prefer an accusation against a party whom he suspects to be guilty of a criminal offense.

“Those only are disqualified from becoming complainants who are incompetent to become witnesses.”

The cases Tiffany cites as incompetent to become witnesses are cases of insanity, drunkenness, extreme age and infirmity, extreme youth, etc., and cases where husband and wife can not “complain against each other,” none of which apply to the case under discussion.

Beyond all question the complaint was legally and properly made, and it was an unwarrantable proceeding to discharge the offender without trial.

Tiffany still further says: “All persons legally entitled to prefer an accusation against a party suspected of crime are bound to exert the power with which they are invested.”

That, gentlemen, reaches us all—every one of us. We are not only permitted, but by the law commanded, to aid in the enforcement of all just laws by making proper complaints of all known infractions of them. When we fail to do it we shirk the duty imposed on all good, law-abiding citizens. We must all do that much, and if the ends of justice are thwarted in the machinery of the courts, it can not be charged up to our fault or neglect. Justice is certainly not always attained in courts at law. The definition of a court-house may well be given as a place where—injustice is dispensed.

This case occurred more than two years ago, and the culprit is still practicing in this city in open violation of the law! How many of you, gentlemen, are conscience-clear under the express commands of the law in this case? Let us suppose a case. Let us suppose that this was a civil suit brought by any one member of the Grand Rapids Dental Society for the collection of a claim of ten dollars, ruled out of court because of some technical error in the wording of the summons, is there anybody here who doubts that the defendant would have been promptly brought before the court the next morning on an amended complaint?

In December, 1894, on complaint of the writer hereof, one

M. D. Halsey was put on trial at St. Johns, Michigan, for practicing dentistry illegally. Very briefly stated, the facts are these: He advertised, as his exclusive business, that of extracting teeth, and proceeded to do so. The law makes the practice of dentistry illegal without first proving qualification and procuring registration on such proof.

Halsey had not complied with the law in this matter, and so acknowledged. He claimed the right to engage exclusively in the business of extracting teeth, as he had been doing for the last preceding four years, because, for twenty years prior to that date he was a practicing physician and surgeon. This claim was based on a clause in the law which reads as follows: "Nothing in this act shall be construed so as to interfere with physicians and surgeons in their practice as such," that is, in their practice as *physicians* and *surgeons*. That language is certainly clear. The only question in the case, was, whether he was engaged in the practice of general surgery or of dentistry?

Three of the leading physicians, of St. Johns, constantly engaged in the general practice of medicine and surgery were called by the defense, and, very properly, testified that they frequently extracted teeth, and thought they had the right to do so. On cross-examination, being both intelligent and honest, each testified that a man engaged exclusively in the business of extracting teeth would not be practicing general surgery, but that his business would, necessarily, have to be classed as "dental surgery."

Webster's definitions, which were read to the jury, make "dental surgery" synonymous with the single word *dentistry*, which can not be legally practiced in Michigan without first procuring registration, which Halsey acknowledged he had not done. This was the whole case, and so plain, so clear, so distinct, that a bright ten-years old school boy, if awake, could not fail to correctly understand it. The above facts were submitted to a jury, at least one of whom sat and nodded, blinked, and slept through most of the trial! This jury returned a verdict of "no cause for action!"

In a trial at law, either civil or criminal, it is discouraging,

exasperating, to obtain a verdict which is entirely at variance with law, evidence and justice. In this case, however, there is another side to be observed. The first jury disagreed, making two trials necessary, each of which cost the defendant twenty-five or thirty dollars and the people of the county of Clinton a small fractional part of a cent each. He could have been arrested again and again for the very next, and each subsequent infraction of the law, whatever the decision of any jury in the case. The one experience in Clinton county, however, had been rendered unprofitable and dangerous to repeat; accordingly, he packed his grip and left for parts unknown.

In March last, Archibald Cunningham was put on trial, in Detroit, for violating the law to regulate the practice of dentistry in Michigan. In reporting this case the *Detroit Free Press* stated that Cunningham's lawyer, one Glidden, "claimed that the law under which the complaint was made is unconstitutional, as it makes a distinction between a citizen of this and other States." One thing is certain, and that is, that the constitutionality of the law is not on trial before *any* jury. He might unjustly, improperly influence the jury by dragging in that question, but it has no business before the jury, whatever. That the dental law is unconstitutional, for any reason, whatever, I do not believe; that it is unconstitutional for the reason assigned by attorney Glidden, I most emphatically deny. If the law means anything it means just simply and exactly what it says, no more, no less. It is written in plain, simple, easy English words that we all understand; in words that we can comprehend just as well as can any lawyer. Study the law carefully, each one of you for yourself, and you can not find one sentence, or a clause of a sentence, to justify the assertion of attorney Glidden. During my whole seven years services on the Board of Examiners there was not a single interpretation, act or decision by the board to justify attorney Glidden's assertion.

The law does discriminate against the graduates of dental schools of foreign countries. The law, very justly, does discriminate between long term and short term, high grade and low grade dental colleges. It fixes a standard of comparison. It fixes a

degree of qualification necessary to permit the party to legally practice dentistry in this State. The applicant has either one of two ways at his disposal by which to prove his qualification. Any person, from any State in the Union, presenting himself with a diploma from any dental college in the United States of the required and stipulated standing, is entitled to registration without examination. All other applicants, from whatever State or nation, are required to prove qualification by submitting themselves to an examination before the board. That is all. The matter of nationality, State or citizenship, does not enter into the question under the law. The most careful scrutiny of the entire law will not reveal any thing of the sort. More than all this we have high legal authority for the assertion that the law is constitutional.

In December, 1892, while the board was in session, at Detroit, Dr. Charles A. Emerson and Dr. Henry L. Weak, presented themselves before the board and demanded registration on their diplomas which was refused, for the reason that the colleges from which they graduated did not have "courses of instruction and practice fully equal or equivalent to that of the college of Dental Surgery of the University of Michigan," as the law requires. By agreement, an hour was named at which time they returned, accompanied by their attorney, one Peter E. Parke, who argued the case at some length, citing various reasons why he considered the law weak, and even unconstitutional.

His argument and citations were taken verbatim by a stenographer employed by the Board for the occasion, and referred to the Attorney-General of the State for his opinion, which I will now read :

"STATE OF MICHIGAN, ATTORNEY GENERAL'S OFFICE, }
" LANSING, February 22, 1893. }

" A. T. Metcalf, Esq., Secretary of the State Board of Examiners
" in Dentistry, Battle Creek, Michigan :

" DEAR SIR: Your favor requesting my opinion as to the validity of Act No. 98, of the Public Acts of 1891, which is an Amendment to Act No. 140 of the Laws of 1883, entitled 'An Act to Regulate the Practice of Dentistry in the State of Michi-

gan,' and as to the right of the said Board of Examiners to exercise their discretion and sound judgment under said law in determining what colleges have a course of instruction and practice fully equal or equivalent to that of the College of Dental Surgery in the University of Michigan, is received and considered.

"I am very clearly of the opinion that the law is constitutional.

"The State has a perfect right to prescribe the qualifications of persons who practice dentistry within its borders. I think no one would question the right of the State to require every applicant who was not a graduate of the College of Dental Surgery of Michigan to submit to an examination.. But we have been more liberal than this, and have admitted graduates of certain other colleges without examination.

"Such a law is not in violation of the Fourteenth Amendment of the Constitution of the United States, which provides that no State shall deny to any persons within its jurisdiction the equal protection of the law. (See *Bradwell vs. State*, 16 Wallace, page 130; *State vs. State Medical Board*, 32 Minnesota, page 324.)

"In as much as the State has a right to prescribe the qualifications of the dental surgeons who desire to practice dentistry within its borders, the power of determining such qualifications must be placed with some Board or officer, and the Legislature has very wisely left this matter with a Board especially qualified in such matters, and when said Board has acted fairly and has justly exercised the discretionary power reposed in it, no one can legally complain. (*State vs. Gregory*, 83 Mo., 123; *State vs. State Medical Board*, 32 Minn., 324; *Ambler vs. Auditor-General*, 36 Mich., 271; "*Mechem's Public Offices and Officers*," Sec. 945; *Board of Supervisors vs. Auditor-General*, 27 Mich., 165.)

"The law leaves it with the Board to determine what colleges have a course of instruction and practice fully equal or equivalent to the College of Dental Surgery of the University of Michigan, and they having determined what colleges do have a course of instruction and practice fully equal or equivalent to that of the College of Dental Surgery of the University, and it not appear-

ing in any way that they have abused their discretion in this regard, I nor any other person should presume to substitute our opinion as to what colleges are, or are not, entitled to this distinction.

"I give it as my opinion, therefore, that the Board has a right, when acting fairly within the discretionary power vested in it by law, to determine what colleges have a course of instruction and practice fully equal or equivalent to that of the College of Dental Surgery of the University of Michigan, and they can refuse to register applicants in accordance with such determination. " Respectfully,

(Signed)

A. S. ELLIS, *Attorney-General.*"

The intent of the dental law is good. Its terms are liberal. All who are qualified can easily prove the fact, procure registration, and thereby legalization. Beyond all question its language, terms, conditions, requirements are all within the prescribed constitutional bounds, both State and National. Its rigid enforcement would accomplish the object sought in its enactment.

The prosecuting-attorney of each county, by virtue of his oath of office, is directly pledged to attend to all cases brought under this law. Some are both willing and competent, and some have proved themselves very loth to discharge their duties in the matter, a reason *sometimes* assigned being that their offices are salaried and that they get just as much for doing nothing as for doing their duty.

The law designates no person whose duty it is to make complaints or to collect and produce evidence. The people in general, whom the law was enacted to protect, can not make the complaints, for they have no knowledge as to whom the offenders are. The representative dentists of the State are the persons on whom this duty certainly devolves, and they have, inexcusably, shirked this duty. Why? Echo answers, "Why? If it be from extreme individual modesty or bashfulness the obstacle may, perhaps, be overcome by united action as represented by this Association. Certainly, for many long years it has done its duty and has done it cheerfully, and nobly, and well. I believe it can be depended upon in this emergency. What has been "everybody's

business has been nobody's," and during the management of Nobody the illegal practitioners, as reported to the Board of Examiners, have increased year by year from a very few up to 205, the present number on the list. If, instead of reporting these to the Board, the dentists making the reports had reported to the proper officers, and caused prosecutions, as was their duty, the present number would have been reduced by about 200. The registry list now contains 825 names of legal practitioners, but there is no provision in the law for correcting this list. Of course many have died, and many have removed from the State since this list was commenced thirteen years ago. Probably the total number now in practice will not exceed 700. Not less than one in five of all now in practice throughout the State are doing so illegally. Such of these as are qualified should be registered, and the others should be compelled to suspend practice.

There are very few illegally in the practice of pharmacy. The pharmacy law expressly stipulates that the Board shall investigate all complaints and prosecute all offenders.

What is compulsory on the Board of Examiners in pharmacy can be voluntarily done by this Association in relation to violators of the dental law. It has been suggested that this Association employ an attorney to look after these matters. In what respect an attorney, drawing a salary from this Association, would be better than one drawing a salary from the county, is not clear. 'Tis true that many "snide" dentists are paid for worthless work, but conscientious, representative dentists receive pay only for their successes—never charge for their failures. I would suggest that an attorney be employed on the same basis. Pay him a reasonable fee for each success—for each conviction—and nothing unless conviction be secured. On such a basis he will study his cases well, and will make a success of it.

I would suggest that this city, and the city of Detroit, be first canvassed and cleansed. I would employ an attorney on the basis suggested above for *each* city, and set them at work at home, which will save all traveling expenses. By the time each city shall have been purged, a general exodus will purify most of the State.

DR. A. W. DIACK, Detroit, read the following paper, entitled

PROPER DENTAL LEGISLATION.

Of all the subjects in the programme of this annual meeting there is none, in my opinion, which is of more importance than the one to which this day has been allotted.

In point of fact and condition, which at this time confront us, there can be none more important, standing, as we do, between two periods, when the fate of dentistry is to be decided for a long time either for the better or the worse.

This meeting, coming as it does, in the year between the biennial meetings of our State Legislature, should be so united in the upholding of the dignity of the profession and the justice of proper dental legislation, that it should put itself on record in that manner; for this year, if I read the signs of the times correctly, is the pivotal one. We must unite and act or suffer defeat, which would not only allow a retrogression in our standard, but would retard the growth of dental science, and, furthermore, would retard even proper medical legislation in this State for many years to come.

All members of the society are fully acquainted, I hope, with the strenuous efforts which were made in order to defeat the passage of an amendment to our dental law during the session of the last Legislature. This would have rendered the law practically null and void so far as the general admission of unqualified persons to practice in this State is concerned, but even when these efforts were successful we left undone the most important duty—a duty more important than the lobbying at Lansing—and that is, the rigid enforcement of the law as it stands. By so doing we could have gotten rid of the unqualified, and the fight in the Legislature could not have been renewed, but, as it is, we have merely defeated them in a preliminary skirmish—the battle is yet to come; we have merely used an antiseptic and not a germicide. The bacillus is still present and when the culture medium is once more made favorable, which will be at the next session of the Legislature, the bacillus will again be found to be active. The worst part of this disease, too, is that having it once

does not cause immunity from a second attack. So, I think, it behooves us, as a society, to take some decided action on this, our dental law, and either enforce this one, making a clean sweep of the unqualified, and get rid of the trouble which will arise in the future, or if we do not this, we ought to concede the present law a failure and devote our efforts to the formulation of a law that would not be a failure. That efforts have been made to rigidly enforce the law you all know, and you all know how unsuccessful those efforts have been. Judging from this, the law, I think, must be conceded to be a failure. I do this, possibly, because of the failure of great efforts of the best men in the State to cause a conviction under the law, and the law which can not be put in force with the efforts mentioned must be a practical failure.

And now, I would like to offer some ideas and theories—perhaps they are chimerical—that they are open to criticism I have no doubt, nevertheless, I believe them to be worthy of consideration, else I should not dare to take up the time of this society.

I would like to point out what I take to be the weak points in our present law and then offer a substitute which, I think, would obviate the difficulties that we meet in the enforcement of the present one.

First: Our present law as it is in action creates two different standards—practically if not literally—the standard of the University of Michigan, and the standard of the Board of Examiners. In order to see that this statement is true, a glance at the applicants for examination, and those who have passed the examination will suffice. The majority of those who have applied and have gotten certificates from the Board of Examiners have come from colleges whose courses have been of six months' duration on the average, whereas, the University of Michigan requires nine months' course. Considering or conceding the fact that the instruction received in all colleges is the same, and to say the least, we can not give to our University of Michigan professors a lesser ability than those of other colleges, it follows, if the standard of a six months' college is sufficient to pass the Board of Examiners, that the extra three months in the Univer-

sity of Michigan is not a necessity ; in other words, we have conceded that the University of Michigan has a standard above that set by the Board of Examiners.

Second : The standard of the Board of Examiners varies as the personnel of the board varies. This being a fact it must follow that this law lacks dignity in court ; that in charges before the jury where the law is to be enforced, the charge that the Board of Examiners could show partiality can be used with prejudicial effect on an ordinary jury.

Third : That this Board of Examiners may, at some time, be constituted of men not qualified for the place because it can be obtained through political influence, and when I say this I do not want any member of the present board or any member of past boards to think of personalities in this regard. Such is farthest from my thought and I merely state what I think might be a weakness.

Fourth : The provision concerning the practice of dentistry by physicians practically annuls the law in itself, as some of us saw in Detroit this spring. "A chain is no stronger than its weakest link." Anybody can register as a physician or a medical student, and as such is allowed to practice the healing art. There is no jury, even if it were composed of members of this Society, who would say that a man who is stopping and preventing pain was not doing a noble thing. And this can be said of any one who hold himself as a physician, whether he practices as a dentist or not.

Fifth : The law makes no provision for the enforcement of the law, leaving it entirely in the hands of the citizens of the State ; here it is practically pigeon-holed. Evidence and proceedings must be obtained and started entirely by some dentist in the locality in which the evil exists, and to say nothing of the time and worry and undue publicity which it gives a man it also forms ground for another charge to the jury of malicious persecution : "The silk-stockinged gentlemen who have palatial, gilded offices, and who belong to this dental union called a Dental Society, are persecuting this poor man who is honestly trying to earn a few dollars for his family ; the silk-stockings

do not like competition because the poor man does his work cheaper." This is the plea to the jury which the defendant's attorney might and does use, and must we not own that it is effective?

Sixth: The present law is an injustice to an applicant who moves into the State just after a Board-examination. He has six months of uncertainty, whose fruits of labor may be scattered to the winds by failure to pass the examination. It is hardly just either to the applicant or the patients who may have come into his hands. Now, after looking at what I take to be the fallible points in the present law, I would like (as I said before) to make some suggestions along the lines of which a dental law in this State could be formed, which I humbly believe would be logical and practical. I submit the following suggestions and reasons for the same:

As a first requisite to practice in the State of Michigan, I would favor the law which would compel every man entering the profession to take an examination. This would include everybody, not even accepting graduates from our own State institution.

And the next point would be the doing away with the Board of Examiners as now constituted and placing the duties of the office in the hands of the Faculty of the University of Michigan, as officers of the State.

And, thirdly, the law ought to provide that a State officer be appointed by the Governor, whose duty it would be to act as prosecutor and complainant in these cases of violation. This officer might also be the officer whose duties would be the prosecution of cases under the Medical and Pharmacy Acts, providing likewise, that we will have a Medical Act from the next Legislature, and the probability is that we will.

Fourthly: Provisions concerning the practice of dentistry by physicians or men holding medical diplomas should not be in the law.

Fifth: This law should be made to apply to all men practicing dentistry, even those who are employed in the offices of dentists already registered should be made to pass an examination.

Having stated the provisions which I think an ideal dental

law should have, I will give my reasons therefor, and as briefly as possible. In making every one take the examination, the first objection to the present law would be overcome. We could have but one standard, and that would do away with the charge of favoring any one institution, and that would be the standard of our own State institution, which, from the very nature of its connection with the State, can not be open to the charge of partiality. There are no private interests to be enhanced by holding out inducements to obtain more students.

Second: The next objection, that is the variation which is likely to be found in the standards of different Boards, would be met, as there would be no standard so unvarying as the University.

Third: The personnel of the Board would necessarily be of the highest, and subject to none of the changes which could take place in the present condition of affairs.

Fourth: The point concerning the legality of a medical diploma allowing dental practice would be virtually overcome for the State itself, through its institution and appropriations for the same, takes for granted that a dental education is an education of a special kind, else it would not appropriate moneys for a dental school when it already was supporting a medical school. Thus this point would be annulled, and furthermore, if everybody were compelled to take an examination, it would follow that a medical diploma would carry no weight. It would also eliminate the question as to whether dentistry is a specialty of medicine or not, and would allow dentistry, like all self-respecting tubs, to stand upon its own bottom.

Another point to be considered is, that the Faculty of the University would always be in session and applicants could or should be examined at any time, thus preventing the lapse of six months' time, which, as I pointed out before, might be unjust to both applicants and patients.

The provision for a public prosecuting-officer of the State is, I think, of sufficient weight to commend itself—that the University should be the standard is, in my opinion, the best thing that could be for the profession in this State and elsewhere. It

adds dignity to the work and study of dentistry. It is kept by State funds; it employs only the best men as teachers who devote almost the whole of their time to it; that they would be impartial in their examinations could not, I think, be fairly contradicted. From what motives could or would they be otherwise? Their interests are in no wise at stake. The school which they help by their teaching always has had a sufficient number of students. Their private practice in dentistry is not of such great proportions that the coming in of new practitioners to their neighborhood would influence them.

Perhaps it may be said that such a law would be harsh upon men who have been some time out of college, and who had been in practice several years before making application, but here it is supposed that the Faculty would be broad enough to take into consideration this fact and weigh their qualifications justly, even so it would be similar to the stand taken by the present Board. To any considering this, a glance over the list of applicants for the last few years will show that the exception is the man who makes application after having been in practice for over five years in some other State.

The papers by Drs. Corbin and Daick were very fully discussed by Drs. Metcalf, Daick, Fields, Root, Lathrop, Loeffler, Corbin and Taft, and at the conclusion of the discussion the Secretary moved the adoption of the following resolution:

Resolved, That the Committee appointed on Resolutions, which is a permanent committee, be requested to consider the matter of appointing a Public Prosecutor, if I may so call him, and make a report at the morning session or some time to-morrow.

Carried.

On motion, the meeting adjourned till morning.

MONTHLY DIGEST.

Prepared for the DENTAL REGISTER by MRS. J. M. WALKER.

DENTAL AMALGAMS.*

DR. A. C. HEWITT, in an article on the "Uses and Abuses of Amalgam," attributes failure, in many cases, not to the alloy itself, but to the "lazy, shiftless, dishonorable and dishonest workmanship" as contrasted with the daily and yearly work of honorable men without whose work amalgam could not have attained the rank it now securely holds.

Among the abuses pointed out are, failure to use efficient means of securing perfect dryness, carelessness in divesting the alloys of mercurial super-saturation, failure to so pack as to secure equal density throughout the mass, exposing the comminuted material to the oxidizing influences of air and light, instead of keeping it in bars or ingots to be filled or turned to ribbons or chips as required for immediate use, mixing the alloy and mercury with soiled fingers in sweaty palms, thereby increasing the porosity of the amalgam and lessening its capacity to bar out oral fluids, etc., etc.

When either purse or tooth demands something else than gold, whatever material is used, skill and honest endeavor are always demanded on the part of the operator. Dr. Hewitt believes, from experience and observation, that when an amalgam filling is indicated it should be both a stopping and a remedial agent, and he, therefore, prefers copper amalgam as having both tonic and stimulating properties, devoid of escharotic effects.

He reviews the objections urged against copper amalgam, viz.; Cupping or washing out on occlusal surfaces, darkening tooth substance, staining contiguous gold work, etc., and the methods of overcoming these objectionable features, which, he claimed, required only a correct formula, and the observance of

* Dental Review, March, 1895.

chemical and metallurgical laws, uniformity of methods giving uniform results. He then gives, in detail, the methods by which he secures the desired results, the method of preparing the cavity, of preparing the amalgam, and of inserting the alloy, the presence of moisture being the worst for and abuse of copper amalgam.

DR. E. D. DOWNS, in a paper on "The Choice of Filling Materials," read before the Union Convention, at Buffalo, considers the use of filling materials, other than gold, simply as "deviations" from the standard, governed by a variety of considerations as, the skill of the operator, the health of operator or patient, the purse of the patient, the conditions presenting in the mouth, the quality of the teeth, etc., etc.

He would use gold under the age of sixteen years only in exceptional cases, preferring gutta-percha in approximal surfaces, in crown, oxyphosphate and occasionally, amalgam, in crown cavities. He considers amalgam our sheet-anchor where everything else fails. If a patient can not afford gold in the back teeth, then, put into carefully-prepared cavities, carefully-inserted and well-filled amalgam fillings, and thank God you are a good dentist, and a benefactor to suffering humanity—a greater honor to the profession than one who would turn him from the door to fall a victim to the hypodermic needle.

EDITORIAL.

The National Association of Dental Faculties.

The time and place of holding the next meeting of the Faculties' Association is now receiving a good deal of attention on the part of the Faculties of the various Colleges. Nearly all concede the desirability, in some respects at least, of a change of time for the meeting, quite a number advocating the holiday time as the most feasible; others preferring it to be held in April, at the time when quite a number of colleges have a few days' vacation; and other are strongly opposed to any change of time.

On one point all seem to be of about the same opinion, viz: That more time ought to be given to the work of the Association than it has received heretofore; that the importance of its work is becoming more important every year, and better opportunity ought to be afforded for it; its work has, each year, been crowded and rushed along with too great haste. The educational interests of the dental profession is, in a large measure, in the hands of this body, and while it has done grand work in the past, it must not be forgotten that great and rapid progress is being made in all educational work, and no department can afford to fall behind.

Many subjects that have not, as yet, been before this body at all, ought to have earnest consideration and adjustment; these will occur to the minds of those interested without mention here. It is to be hoped that if the time of holding the meeting is changed that it will be accepted by all, and a full attendance be had. Six sessions, occupying two days and evenings, devoted strictly to business, would accomplish much more than has ever been done at any one meeting.

An effort is now being made to ascertain the wish of the membership, and if it is decided to hold a meeting in mid-winter or in the spring, it is to be hoped that the largest possible number will be present; and we suggest that each one have in mind some important subject for consideration; indeed, a program of subjects ought to be prepared and distributed to all the members a month or two before the meeting, whenever it may be held. Looking toward that point the suggestion is here made, that the various members formulate questions and subjects, and forward them to the Executive Committee, that a program may be prepared. Such preparations should be made for each and every meeting whenever it may be held.

Bibliographical.

The volume of the Transactions of the Illinois State Dental Association has just come to hand. It contains the papers, discussions, and proceedings of the Society, at its last meeting, held

at Springfield, May 12, 1896. The volume contains eight original papers, and a number of most excellent reports on interesting subjects, each of which was discussed pretty fully. This volume contains much valuable matter, and is worthy of a place in the library of every progressive dentist. Every State Society ought to publish its proceedings in a volume, and this, in addition to any publication that may be made in the journals. This ought to be done for the permanent preservation of the matter, and for ready reference to it.

Ohio State Dental Society.

DECEMBER 1, 2 AND 3, 1896.

PROGRAM.

President's Address, Dr. Henry Barnes, Cleveland.

"Dental Legislation," Dr. G. H. Wilson, Cleveland. Discussers, Drs. J. Taft, C. I. Keely, A. F. Emminger.

"Teeth Extracted without Pain," Dr. W. I. Jones, Nelsonville. Discussers, Drs. H. S. Ainsworth, W. H. Sedgwick, F. O. Jacobs.

"Dental Operations During Pregnancy." Discussers, Drs. H. A. Smith, C. R. Butler, E. H. Raffensperger.

"The Use of Gold and Tin in Combination as a Filling Material," Dr. W. B. Connors, Akron. Discussers, Drs. A. E. McConkey, Ira Brown, A. T. Whitesides.

"Cataphoresis—A Summary of my Experience with Cataphoresis," Dr. L. L. Barber, Toledo.

"The Galvanic Current," Dr. H. G. Husted, Oberlin.

"Some Reasons why we Fail with Cataphoresis," Dr. Wm. H. Hirsch, Piqua.

"Bleaching by Cataphoresis—Clinic," Dr. Henry Barnes, Cleveland. Discussers, Drs. L. E. Custer, P. S. Bollinger, J. R. Bell.

"Smooth-Pointed Pluggers," Dr. Chas. G. Myers, Cleve-

land. Discussers, Drs. W. H. Todd, E. Sloane, C. R. Converse.

"Empyemia of the Antrum," Dr. John T. Stephan, Cleveland. Discussers, Drs. Grant Mollyneaux, M. H. Fletcher, F. W. Sage.

"Bacteria of the Mouth," Dr. C. T. Whinery, Toledo. Discussers, Drs. L. P. Bethel, H. F. Harvey, H. R. Clark.

"Imagination," Dr. J. S. Cassidy, Covington. Discussers, Drs. C. M. Wright, E. G. Betty, D. W. Clancy.

"Antiseptics and Disinfectants in Office Practice," Dr. H. B. Bartilson, Columbus. Discussers, Drs. S. B. Dewey, David Harroun, J. A. Lupton.

The meeting will be held at the Neil House where a rate of \$2.50 per day will be given to those in attendance.

Dr. Jack's Views on Implantation.

It is unfortunate that in too many instances planted teeth, which have become fixed and useful organs, have, after several years, from causes not entirely clear, yielded to absorption and have become useless. The termination of these cases seem to come on with suddenness and without warning of the resorptive process. The cause of this result we have to look for in a depressed trophic state of the environment, in which condition it is not unreasonable to expect tissue of repair to be the first to yield. In any defective condition of the nutrition of a part this result is in consonance with well-fixed principles.

We have also to consider that the alveolar process is a provisional structure, and that its tendency is, on the occurrence of irritation or of impaired nutrition or by static conditions, to yield to resorption. The fact that it is provisional would impress on it the tendency to this structural change.

Notwithstanding the prognosis of planted teeth is at present precarious, the promise of useful operations is so large, when selection is made of subjects in sound health and without cachetic taints, that, where plantation is required for the good of the patient, it should be performed. The probabilities are that greater experience will lead to improved methods and more certain results.—*Cosmos*.

THE DENTAL REGISTER.

VOL. L.]

DECEMBER, 1896.

[No. 12.]

PROCEEDINGS.

Address at the Opening of the Session of 1896-7.

BY JAMES B. HODGKIN, D.D.S.

Professor of Dental Pathology, etc., in the Medical and Dental Department of
Howard University.

Ladies and Gentlemen :

It has been my fortune to make addresses, not a few, in the course of my professional career, but it has chanced that this is the first time I have stood in precisely the position I now occupy. Not that I have not done a deal of talking, more possibly than was good for those who heard me, but, then, most of these hearers were students and did not know any better, or found it best not to try to escape from the assaults I made on their ears. Be this as it may, I think it best, just now, to be a little careful, not only of what I say, but of the time I occupy, for time, I believe, is about the only possession, which, once lost, we can never retrieve.

Fortunately for me, I have about me some certain grave and reverend seigniors whose sympathy I am sure I have; they, or at all events, most of them, having tried this "address business" before. They know, possibly to their sorrow, how difficult it is to tell an old story in a new way.

And I am sure I shall earn the gratitude of, at least, some who are present if I am brief—some who will hear from me, in a more or less tedious way, in the next six months or so. For you will hear about bones, arteries, tendons, muscles—the histologic

anatomy of the soul almost—much that to the freshman is new, startling, seemingly impossible. Yes, you will not only hear this, but you will get to delight in it, revel in the butcheries of the dead-house, and have, I fear, little compassion even for the poor fellow that is dying if you can be “in at the autopsy.”

For such is the student's life. Himself, possibly, the most sympathetic of men as he stands at the bedside and watches the death-struggle in the fevered patient who is feebly battling for a few more hours of life, or, it may be, tying the severed artery that is so rapidly leaking away the life of the wounded man; he seems to be obliged to get in the hospital and the dissecting-room that he may be in sympathy with the sufferer in the hospital cot, or maimed and mangled in the horrible railway collision. Of such seeming impossibilities is the warp and woof of our life made. It seems strange, indeed, but it seems to me that the hard and the soft, the resolute and the tender are so inextricably mixed and mingled in our life as to be incapable of separation.

Who, but a hard and cruel man, can relentlessly thrust a knife into an inflamed and diseased organ? Who, but the most unsympathetic man, can be ready to do such work?

I think I have wandered a little from what I started out to say. It was, that the training we get here should make us not only much wiser, but much better men and women. That the schooling we get here in witnessing of human suffering, if it works out its proper results, should make us more tolerant of other people's complaints, more forbearing of their groans and cries. If the life-study we get here, in witnessing suffering does not help us to be more patient with querulous sickness, and invalidism only active in groans and complaints, we will, as I take it, fail to have learned one of the chief lessons of the student. To be calm in the presence of the discontented and alarmed, to allay the fears arising from ignorance, to be so helpful in mien and port before those who are all fears and gloom—this is no small part of the learning we are to acquire.

Now, I will tell a little secret. It is that of those whose fortune it has been to have fallen into my hands for the minor sur-

gery of the teeth, the most timid patients I have had have been doctors. Somehow, the constant witnessing of suffering does not bring ability to bear it, nor does the skill to cure the sick and maimed give nerve to take suffering for one's self with fortitude. I have no time to analyze this interesting puzzle, but it is a fact, as most of my dental friends will testify.

I once said that, at least so far as a dental infirmary was concerned, that the motto over the gates of the *Inferno* might, with a slight interpolation, be placed over the door: "He who enters here leaves hope (of teeth) behind." For your average dental student, and I take it that the average medical student is not unlike him, has not the keen appreciation he might have of the fact that the poor, penniless wretch before him, with aching tooth and swollen jaw, is flesh and blood, with nerves as sensitive and tissues as shrinking from pain as the well-to-do office patient. And I beg you to recollect and keep constantly in mind the fact that the hospital patient is a real live man, or woman, or child, with all the dread of physical suffering that you have.

I realize how difficult is the situation here. To be gently severe; to be pitilessly tender; these seem opposites and antagonistics. Yet, I do think they can be blended, and the firm hand holding the keen knife can be firm, yet tender. "The eye is the window of the soul," and your patient, looking in your face will read there, as in an open book, whether you feel for him and will spare him so far as good surgery will admit.

I hear one whisper to another, "This is an old fogey, and this is something written before the days of ether or chloroform." Not so; what has been will be, and no anæsthetic yet discovered can take away the terror, or the dreadful fear. Lie down to-night, close your eyes and calm yourself with the thought that you may never wake again, or that, possibly, during your sleep you will be cut and maimed and mangled and mutilated in the interests of science, and not even the idea of future health as contrasted with present suffering will make you comfortable or drowsy. Blessed be the anæsthetic, but there is terror withal, an intuitive horror felt even by the most savage people at the mutilation of this casket of the soul, this divinely immortal body.

But I have, I dare say, said enough on this subject, and only repeat that I hope you will daily study, among these poor unfortunates who are doubly so in being diseased and in being obliged to come here, the fine art of sympathy. It need not unsteady the hand, or make less firm the will, but it will be a precious balsam to those who are your victims by being the victim of disease.

Being here to receive the truth, I trust a word on the manner of its reception may not be amiss. In that old book, which contains a great deal of truth despite the assaults made on it by modern unbelievers, there is a saying something like this: That unless you receive the truth as little children do it will take no hold on your minds or hearts. Now, little children believe what is told them because they do not know any better; they receive the truth they hear into virgin soil, nothing doubting that it is *the* truth. What I wish to say is that if you, coming here to learn, will train your minds (and I may say your hearts as well), simply to believe what you hear in these lecture-rooms, nothing doubting, it will be a most wonderful way to facilitate your education. To hear, and then to doubt; to listen, and then to be dubious as to the doctrine, may be the role of the philosopher, but not that of the student. You have no time for such. To be constantly in doubt as to whether the lecturer is correct in his statement, and to make a mental reservation, going to the text-books to verify or disprove what has been taught is plainly a waste of time as well as of effort. And yet, I have known such students.

If *education* is to draw out what is in us (and the ancients evidently thought so when they adopted a word taken from the mechanical arts), e-duco, wire-pulling. (I beg that you will not associate this, in any way, with politics.) It involves the idea of ductility, or, so to speak, plasticity, on the part of the thing drawn, and a doubting mind is like a stiffening alloy in the pure metal, making the e-duco difficult, perchance, impossible. So I beg you at the very start to throw away all pronounced notions, and lay aside any ideas you may bring with you to this place, and take it for granted that we, your teachers, are trying hon-

estly to bring you the truth, the latest, best, highest and most useful truth. It will be time enough when you set up for yourselves to compare what you have been taught here with what may be thought truth elsewhere.

I spoke, just now, of education as a drawing-out process. I trust that you will keep that in mind. We, who teach, are obliged to bear it in mind constantly. There is no teacher in all this university corps, or of any other university corps, who can make a great man out of you, or you, or you. A house may be built of bricks, but for the bricks you must, at least, have clay and fire too, and both are, by us, uncreatable. The brick is but another form of matter, so to speak, and we have drawn it out, educated it, out of the earth. So with our minds. We can only take the materials there and form, and fashion, and mold them into a certain shape they had not before. Certain elements, it is true, enter in, as the training of the eye, the training of the muscles and training of the thinking powers, which last we are fond, now-a-days, as fancying a sort of mental muscles. But the eye, the muscles, the brain must be there or there is no e-duco. Education is not, as seems commonly supposed, a sort of sausage-stuffing process, by virtue of which the empty student is stuffed to repletion with knowledge.

So, I conclude this part of the subject with the application of the old but rather coarse adage that one can not make a silk purse out of a swine's ear. And I trust there is no student who hears me who will expect more of this faculty than a strong helping hand and a deal of good advice, which last you may or may not follow.

In some colleges that I have seen, there seemed a strange spirit of wrath, almost, toward the Faculty. I am greatly in hope that there is none such here, and, indeed, I am glad to say that I have seen no such spirit here in the past. But I *have* seen students who seemed to think that what was the property of the college was a sort of lawful prey which they were privileged to break and destroy in a very uncivilized and savage fashion, as though they were a set of Goths or Vandals with a mission to smash the laboratory fixtures and destroy or injure the instru-

ments. I trust that there is no such Goth or Vandal here, for, really, the things that are here are *yours*, not ours, in the sense that they are only useful to *you*. I dare say there is not a professor who would care to come here and while away his time in these laboratories if they were empty of students. They have something better to do. What is here is for *your* use, not ours, although the college furnishes it. These are the tools with which to do the "drawing out," and I hope I do not speak amiss when I appeal to the pride of every student here to see to it that the college-apparatus is as carefully handled by you as though you were trustees, accountable to a court.

I see before me a strangely mixed audience, as strange almost as confronted the Apostle Peter (I take it for granted you are, all of you, familiar with the history of the day of Pentecost) when he made his notable sermon on that occasion. I see the Caucasian of the West, the black man of the Eastern tropics, the yellow man of the Asiatic race assembled to-night representing three distinct races of mankind. But I see more still, for I see man and woman side by side, seeking knowledge from a source until very lately reserved to the man alone. It seems, even yet, with all our years of familiarity with this mingling of sexes a strange thing to see women studying professions for which, a few years ago, we thought them utterly unfit. But we become used to this, and it is proper we should when we find these same women, or their representatives, in the stores; in all places where light work is done, and where quick wits command a premium. To see these women in a class-room! It looks very shocking to some, and yet you, my friend, don't object to having a woman-nurse give you your medicine when you are sick; and please tell me why this dear woman shouldn't know how to compound the medicine, and know what sort of disease it is good for or even be able to discriminate the diseases when she sees them? The best doctor is a good nurse, and if you can combine both in one, and give the nurse the doctor's knowledge, is she any worse for it?

I remember, long ago, that men and women used to sit on opposite sides of the church; but that *was* long ago, when men

didn't realize that women close at hand, like a magnet, were more powerfully attractive than at long range, and much more potent for good. And I would like, just here, to tell a bit of professional experience, in a teaching way: Some twenty years ago I was teaching in a college not a hundred miles from where we sit, a school with venerable associations, the oldest and, for years, the only dental college in the world. For years there had been young men only, and—disorder. How hard it is to keep the average young man student in order, only the village school-teacher and the college-professor can testify. But one session, at its beginning, the Faculty was confronted with a new and grave problem, albeit a pretty one. A young lady wished to study dentistry! She came from Germany; spoke good English; was well educated. But a woman in the class! The students heard of it and rose up in arms. "It should not be!" they said. They would make it hot for her! She would be glad to leave! Just let her try it!

The Faculty yielded to the fair speech of the fair German. She took a seat in the class-room, and a hush fell upon that class, such as was never known before. How that little German girl could so quickly leaven that great mass of disorder I never could comprehend, but she did it; and from that day the good behavior of the class was the talk of the Faculty-room. And I have to say that she passed a better examination than any of the students at "the final," too.

From that day no professor of that college has, so far as I am aware, objected to lady students. So much for sex in education; and now a single word as to color. We, of the Anglo-Saxon race, pride ourselves on our race. We have a feeling, right or wrong, that "we are the people," and that wisdom will die with us. This is classed as upstartishness by some, but I only want to say that unless a race has *race-pride* it can never rise to greatness. It is just as impossible for a race to grow great as it is for an individual, if the race or individual is simply aping some other successful race or nation. In INDIVIDUALITY alone lies the secret of success, and this is just as true of one race as of another. It takes, of course, only the most superficial observation to discover

that no two persons have precisely the same views of things, and so no two nationalities are exactly alike; each must develop on its own lines. So I have to say to the different races represented here, that in trying to learn do not lay great stress on the fact that you can not do just what the workman of some other race does, just exactly in the same way he does it. Don't be afraid to be original; original in conception, in execution. In a word, be yourself. Being an Anglo-Saxon, I naturally feel that I am a little better than the rest of mankind who are not Anglo-Saxons. It is your privilege, nay, I am rather sure that it is your duty, to think *yourself* a little better than the other fellow. I want to say this, however, that no matter how I may esteem myself, and possibly overrate my own powers, for me to deny to the races in life of another color the privileges I claim for myself, would stamp me as unworthy of a place in the great brotherhood of man. I say I should be ashamed of myself and of my manhood were I to say, by any act of mine, "I can beat you in the race of life; I am sure of that, but I am going to arrange it so that you will not have an equal chance with me to run the race. I don't feel at all afraid that I will not succeed, but I am going to put stumbling-blocks in your way, you of the other race, lest *you* possibly might excel *me*." I say, to do this would be a confession of weakness truly pitiable. I am not only ready to encourage, but, if it were possible, I would give him whom I may, in my vanity, consider less capable than myself, even superior advantages.

In olden times, when the king was coming, a herald went before crying to the people, "The king cometh, clear the way for him." So I cry, not that the king comes, for here all are equal, all free; but the man who is trying to climb a little higher is coming; trying to climb up the ladder we have climbed. Let no one disturb the foundation of the ladder; let it stand on firm ground. To Faculty: Let us see to it that every round is strong, and the sides stout and solid. Help the man who has the ambition to climb. Give him your hand! On this ladder of education, fame—we who have achieved—have no right to place obstacles. If, in the providence of God, we are in

any way ahead of him who now essays to rise, how mean, how utterly mean will we be if we do not not only clear the track, but cheer the racer. So at least it seems to me, and so I think, will the hearts of the people be.

And, after all, what is success? Is it in the making of money? It will be bad, indeed, if these students before me, when they start out in life, can not do this. But I beg you not to think that this is the end of life—its be-all and end-all. It is a good thing to have, and no man should be above its honest acquirement. But I do think, that for the professional man, there are aims so much higher than mere money-getting as not to be compared with it. If the man who made two blades of grass grow where but one grew before was considered a public benefactor, how much more should he considered a benefactor who takes away from a sick man his sickness? I conjure you, as men who are to study the fine art of healing, separate the operation, separate the *cure* from the *fee*, and having undertaken to do anything for any man, do this your very best, no matter whether the fee be small or large.

May I go on just far enough to say a word to those who are studying my specialty—dentistry? It is but a word. You have such peculiar advantages and facilities for the pursuit of your studies as should make you the envy of the medical student. For the medical student, no matter how thorough his course may be in this University, goes forth from its halls armed, it is true, with a diploma, but next to no practical knowledge of the profession. He must get his practice afterwards, and it is said, gets it at the expense of his patients, who have to suffer for his lack of practical skill. But with you, dental students, it is far different. You may be said to enter on the practice of your profession from the time you enter these walls. You are able to put in actual practice the teaching you receive, on the spot. You do not have to wait for your patients to come to you after you graduate, in order that you may know what to do; rather, day by day you have them here (possibly more's the pity for them), and many a man goes forth from the dental college thoroughly fitted in both hands and head for active, good work, work that will bring a competency.

President's Address.

BY J. Y. CRAWFORD, M.D., D.D.S., NASHVILLE, TENN.

Abstract of a paper read before the American Dental Association, at Saratoga Springs, N. Y., August, 1896.

Notwithstanding the great financial depression and general agitation in our country, our profession has obtained considerable progress within the last twelve-months, it would be interesting and instructive, at this time, to relate and emphasize, but there are other matters which more directly affect the future welfare of our vocation and the good of the whole people that demand our attention. I desire to call your attention to the question of dental jurisprudence, or the legal enactments governing or regulating the practice of dental surgery in the United States.

I will say, first, that any enactment placed upon the statute-books of our common country, or any of the independent States of our common country, should rest upon the immutable principle of equal and exact justice to all, with exclusive privileges to none.

Second. All laws are intended to control the conduct of an individual, or individuals in regard to any definite and universally uniform question in all the States, should be absolutely the same in all particulars.

Third. All laws should be so plain and simple in their construction that the humblest citizen could comprehend them, and, if necessary, administer the same in case he is called upon to do so by the suffrages of the people.

Fourth. The penal feature should be so well marked, and so imperative in demand that none would dare to disregard, only at their peril.

Fifth. Each State should have the same enactments controlling the matter of dental education, making the requirements for graduation uniform in every particular, thus holding dental colleges up to a higher and better standard.

Sixth. The first registration of an individual to practice

should be made within twelve months after receiving a diploma from a regular dental institution of learning. Subsequent registrations in any other State should depend upon the presentation of a certificate from the State Board of Dental Examiners, that the individual held a diploma from a reputable dental college, and that he had engaged only in the reputable practice of dental surgery while remaining a citizen of the State in which he first registered.

In order that this be accomplished Dr. Crawford suggested that the American Dental Association, the Faculties Association and the Association of Dental Examiners, each appoint one member from each State to constitute a committee.

Further, he said: It is certainly evident that unless something be done in the direction of strengthening the moral force of the laws governing the practice in many of the States, the effect of such enactments now upon our statute books will become nil, so far as the desired results are concerned.

We should encourage the uniformity of such laws in all of our States which have the same definite and legitimate object in view. The common patriotism of any learned profession should be willing to do, at least, this much in the advancement and development of the proper fraternal feeling in all the States, thus doing something in the line of obliterating all sectional lines and objectionable sectionalism.

There are many citizens, good and reputable, now engaged in the practice of dentistry in some States who are deprived of citizenship in other States by virtue of the improper construction and requirements of some of the laws in States of this Union, thus virtually disfranchising them to a certain extent. I would insist, especially, that the laws governing dental legislation be so constructed that no college would be regarded as reputable and entitled to public confidence, or be authorized to issue a legal diploma which habitually and knowingly admitted students, or other persons, who have been illegally engaged in the practice of dental surgery in any State.

Dr. Crawford further spoke of the National Dental Museum, and the consolidation of the Southern and American Dental So-

cieties, suggesting that, if this be accomplished, the meetings be held in three grand divisions of our country : the north-east to have one meeting, the north-west the next, the south the next, and so on, alternating from year to year, that the whole profession throughout the entire country may have its full share and benefit resulting from our national organization.

The committee on this address reported that while they realized the importance and needs of such legislation they doubted the practicability of securing absolutely uniform legislation in any large number of States within the near future, and were also in doubt as to the expediency of appointing, at the present time, a committee to be charged with such an undertaking.

COMMUNICATIONS.

The Disinfection of Pulpless Teeth.

BY J. W. WASSALL, M. D., D. D. S., CHICAGO, ILL.

Abstract of paper read before the American Dental Association, Saratoga, N. Y.
August, 1896.

Given a tooth with a decomposing pulp, what is the nature of the pathological state with which we have to deal? We find a condition in which the pulp-chamber, root-canals and dental tubules are loaded with putrefactive animal matter. One has but to recall the large amount of soft tissue contained in the dentine and its formative organ to realize the danger of the situation.

Now, while the removal of this necrotic mass from the chamber and canal, and the disinfection and filling of the vacated space, is a manifest necessity, and is the general teaching and practice, I contend that there is not a general appreciation of the fact that the dentine itself continues to remain aseptic.

There are three classes of cases in which we have pollution of dentine by putrefactive products :

1. Teeth, the pulps of which have perished from the encroachment of caries, the pulp-chamber being open.

2. Teeth, the pulps of which have died from proximity to a large filling, attempts at capping, or insufficient sterilization of the layer of caries allowed to remain over a pulp.

3. Pulpless teeth, the canals of which have been imperfectly filled or sterilized, or both.

A tooth, the pulp of which has been devitalized intentionally, is excluded from consideration in this connection for the reason that, under ordinary aseptic precautions, putrefaction does not occur.

The essential pathological condition to be recognized is the same in all three classes given. We have dead dentine infiltrated with matter highly irritating and poisonous to living tissue in intimate contact with vital cementum, which, in turn, is closely enveloped in pericementum.

What must the effect be on the cementum and peridental membrane of the *materies morbi* which are present in the underlying dentine?

There is no escape from the conclusion that it must account for many morbid conditions and symptoms, the etiology of which is otherwise obscure. There are, no doubt, exceptions of teeth in this state which cause no discomfort. But a little more time may prove that even these cases will not continue quiescent.

Unquestionably, this condition is responsible for numerous affections, more or less difficult of diagnosis, varying from neurosis to remotely situated abscesses, the only subjective symptoms in the causative tooth, discoverable, being a slight sense of lameness in mastication or to palpation.

What treatment does this pathological state indicate? It will not be uninteresting to first notice some of the methods which have, of late, been prominently set forth: The various mummification processes are only temporarily effective because, to use Dr. Harlan's words, "they will not stay mummified."

Emil Schrier destroys pulp-remains with a mixture of sodium and potassium, which is objectionable on the ground that the action of the drug does not extend into the entire depth of the tubules.

Professor Frank Abbott has written a work on "Dental Pathology and Practice" which will be widely read. It is peculiarly unfortunate for the younger members of the profession, whose methods are most likely to be influenced by it, that the chapter, denoted to the consideration of this question, should be so inconsistent with modern bacteriological knowledge. Dr. Abbott imparts a lucid understanding of the fact of putrid dentine and the conditions to be overcome, but the treatment proposed is contrary to the commonest laws of asepsis. The triumph of modern surgery is secured by striving to prevent the entrance of germs into, rather than their destruction after admission to, a wound. How hazardous to teach that a pulpless tooth may be operated upon without first adjusting the rubber dam. The neglect of this precaution against the ingress of the myriads of micro-organisms, which are always present in the human mouth, is hardly excusable at this day. Dr. Abbott also recommends the use of bichlorid solutions for syringing out the pulp-debris. "This is of doubtful utility, because it is at once precipitated in the presence of albumen, thus losing its germicidal and antiseptic powers" (McFarland).

It is also a bad practice to pump zinc chlorid through a tooth to cauterize a pus-sack until a course of treatment for sterilization of the dentine with diffusible disinfectants has first been completed.

These few criticisms are submitted in order to substantiate the charge made at the opening of this paper, that much of the modern practice in the management of pulpless teeth does not conform to the present status of bacteriological science.

The successful treatment of teeth contaminated with putrid pulp-matter would, to my mind, seem to depend upon the strict observance of two details of procedure: First, the exclusive use of diffusible disinfectants.

Second, the repeated and continued application of the disinfectant dressings for a sufficient length of time.

The reason why I give diffusible disinfectants the preference over coagulating drugs is because I am satisfied that exhibition at the pulpal orifices of dentinal tubules forms a plug of coagu-

lated matter which prevents the further ingress of the disinfecting agent, imprisoning within the tubules putrefactive matter which will be a permanent source of irritation to the cementum and pericementum. If it is true, as maintained by Drs. Truman and Kirk, that the entire contents of the tubules is coagulated, there is nothing gained, for the resulting mass is suitable pabulum for micro-organisms, hence there would be no assurance that putrefaction would not recur within the tubules. In the investigations thus far published, the preponderance of evidence seems to be in favor of the avoidance of the coagulating drugs in the roots of pulpless teeth.

The second requisite to success in the disinfection of putrid dentine mentioned, was the element of time: How long shall a dressing be kept in the canal before it is proper to fill it? Until the dentine is permeated throughout its entire depth, and until all micro-organisms and their spores may reasonably be expected to be destroyed.

My observations are that these results are obtained in not less than twelve days—oftener sixteen or twenty—and in some few cases a longer course of treatment is required. The dressings should be changed every four days until no stain or odor is perceived on the cotton-dressing other than the drug employed. Even though the dressing may come away clean on the fourth or eighth day, and you feel certain that the bacteria are killed, it is imperative that the use of the drugs be continued for the full period, in order to also kill any spores which may be present, for they offer greater resistance to germicides, and hence require more time for their destruction.

DISCUSSION.

DR. F. ABBOTT, New York, said that the crowning point of all scientific treatment is the result obtained. You may say there are spores and bacteria, etc., but if they can not develop, what is the difference? You treat these teeth day after day, and what does it amount to? They are plugged up and filled with an antiseptic. This may act as an irritant. He had seen cases, treated in this way, where blood and pus were discharged after three or four days' treatment. He applies an antiseptic and keeps the

parts antiseptic by not drying it out, filling in over this. He believes that coagulators should be used in the treatment of pulpless teeth, and that there is no material equal to chlorid of zinc for the purpose. He asserted that if the method, as advocated in his book, was followed, there would not be one failure in a hundred cases so treated.

DR. PATTERSON, Kansas City, Mo., said that if you take a tooth that was diseased a considerable time and then filled, in the manner advocated by Dr. Abbott, you will, find by cutting into the dentine, that it was not sterilized. This ought to satisfy any man that his method is an incorrect one, and that the dentine is left in a deplorable condition. The disinfectant should penetrate every zone of dentine as many of the after troubles must result from leaving a zone of dentine in such a deplorable condition as found. He did not propose to take such risks.

DR. W. H. MORGAN, Nashville, Tenn., said that many supposed that the treatment of pulpless teeth was a modern method. In 1847 teeth were treated about as they are to-day. The main difference being that they drilled them out as much as they dared. The canals were then treated with antiseptics, mainly creosote, carried into them on pieces of floss silk, which was well packed into the canal. Their test for thorough disinfection was absence of odor. He could show teeth filled forty years ago by this method that were in good condition to-day.

The teeth are easier to treat successfully in patients of good constitution. The teeth of mulattoes are exceptionally hard to save after the pulp has become devitalized; they seem to take on inflammation and cause trouble. In fifty years of practice he had seen only two mulattoes, adults, who had perfectly sound teeth. He thought intermarriage to blame for these conditions.

DR. BARRETT, Buffalo, said the contents of the tubuli is albuminoid in character and, practically, organized tissue. It will coagulate spontaneously if given a chance. It will melt out, for this is one of the laws of disintegration. It is not the character of the medicament that determines his choice of the disinfectant, for he believes it impossible to get anything into the tubules that will pass through to the pericementum. If we seal the mouth of

the tubules it is not necessary to go farther, for the amount of material left in the tubules is so small that no harm will come from it. He thinks that we are getting into speculative philosophy a little too deep. The middle ground between the utter want of scientific treatment, as exhibited by Abbott, and the highly scientific treatment proposed by the essayist, was the best to take. He believes that every dentist should do his best. That honesty is the normal condition of man, and until our instruction has been bad we will remain honest and choose what is best.

DR. RHEIN, New York, believes that while coagulants are not the barriers that is claimed, he does believe that they make a certain barrier to the diffusion of medicaments. By acidulating solutions of bichlorid of mercury you can do away with the coagulating effects. He has found no method so effective in the treatment of pulpless teeth as that advocated by Dr. Schrier. The tubuli are left more open than by any other method he has used and, consequently, the essential oils are more readily diffused after this treatment. He has observed cases thus treated where the taste of the oily dressing came through the cementum after forty-eight hours from the time applied.

DR. WASSALL, Chicago, in closing the discussion, said that the most perfect method is the one to adopt—that sublimate precipitates in the presence of albumen and becomes inert. In using the combination of bichloride and peroxide of hydrogen the results come, probably, from the peroxide, as the bichloride is precipitated. The discoloration of the cotton used for the dressing in a root-canal is not from the drug, but from the putrid matter in the tubules that exudes by osmosis.

Customs of Russian Doctors.

The Russian physician, the *Record* says, considers it beneath his dignity to send a bill to a patient, but leaves it to the patient to pay what he thinks proper. Many think it proper to pay nothing. Are you acting the Russian in business matters? If so, neither free silver, free gold, nor anything can save you from financial distress.—*Kansas City Medical Index*.

Electro-Therapeutics.

BY CHARLES H. ROSENTHAL, D. D. S., CINCINNATI, OHIO.

Read before the Knapp Dental Coterie, Ft. Wayne, Ind., December 3, 1896.

Appreciating the great value of a pain-obtundant for dental operations, I placed in my office about a year ago an electro-galvanic apparatus, especially well-adapted for making cataphoric applications. To give you the results of my efforts in this line is the object of this paper. If I were to give you only the results of my first fifteen or twenty cases, so encouraging were they that I could have enthusiastically recommended cataphoresis, and would have even gone so far as to say that no dentist should practice without an apparatus. To my regret, however, I soon learned that these first cases happened to be the first victims of my anxiety to try this—then new—device. The cases were poorly selected. If the electrodes without current or remedial agents had been employed, and I had simply told the patient of the wonders that were to be performed, as much good would have been done. Subsequent experiment bears this out with reference to those cases where such an application would prove of real value; in those cases of sensitive dentine where patient and operator alike could be benefited, I put myself on record as not having had a single perfectly satisfactory result. The remedial agents employed were McK. & R. Guai Cocaine, as recommended by the *Cosmos*. Also the pure mur. of cocaine, each with the same unsatisfactory result in cases of sensitive dentine.

The only practical use as a local anæsthetic which is at all satisfactory, is its application to expose pulps where, in the judgment of the operator, extirpation of the pulp is indicated. This may be done by placing a small crystal of pure cocaine in immediate contact with the pulp, and applying from one-half to one and a half milliamperes of current; the current should be allowed to play from fifteen to twenty minutes. This will insure a painless removal, obviating the use of the time-honored arsenious acid with its dangers and inconveniences, the pulp-canal being left in an aseptic condition and ready, at once, to be filled.

Its use for stopping toothache, in cases of exposed pulp, is to be discouraged if extirpation of the pulp is not intended, as it would only be a question of a short time, were the pulp capped after cataphoric treatment of such an exposed pulp, that it would die—due to the destructive effect of the galvanic current on the tissues themselves.

Of the antiseptic action of the galvanic current, considered in relation to the treatment of pulpless teeth, there is much to commend it. The positive pole is a good germicide, decomposing, as it does, all organic matter with which it comes in contact—used in connection with the saturated solution of sodium chloride, the reaction setting free nascent chlorine applied to the tooth, will permeate the most tortuous root-canal, thoroughly sterilizing the most septic conditions. Three to five milliamperes, applied with a fine platina electrode, from fifteen to twenty minutes, suffices. It is advisable to immediately fill the root-canal before removing the rubber dam, avoiding the possibility of rendering the parts septic by contact with the ever-present germs of the mouth.

Having given this method a thorough test, extending over several months, and not having met with a single unfavorable result, I take pleasure in submitting this to your consideration.

My mode of filling root-canals, after this treatment, is to whittle a piece of orange-wood to a very fine point, notching it so that it will break off about the length of the root; soak in the tincture of iodine until the pores are thoroughly saturated; mix, of a pasty consistency, iodoform and glycerine, placing the same on the end of the stick, carrying to the root-canal and applying with a churning motion. Break it off, and allow to remain in the tooth, covering the end with cement.

Treatment of *Pyorrhœa Alveolaris*.

Local anæsthesia; thorough removal of all deposits and diseased process; lactic acid as a solvent; trikresol (one-half of 1 percent solution) as an antiseptic wash; resorcin to produce adhesive inflammation. Pack large pockets of iodoform gauze. One treatment is all that is necessary in ninety-nine out of one hundred cases.—R. H. COOL, in *Pacific Stomatological Gazette*.

PROCEEDINGS.

[Continued from Page 567.]

JUNE 11, 1896—MORNING SESSION.

The meeting was called to order by President House.

The minutes of the previous session were read and approved.

A paper entitled "What Should the Dentist do to Save the Teeth," by N. S. Hoff, D. D. S., was presented (See August No. of REGISTER, page 379).

The discussion was opened by Dr. Taft, as follows:

GENTLEMEN OF THE SOCIETY: The suggestion was made to me a few days ago to discuss this paper, and, especially, to discuss one of the features given in the first part of the paper, "What can be done by and for the expectant mother during the time of gestation and lactation, for improving the condition of her offspring?" This is a question that has been somewhat discussed, and upon which various opinions have been given; of course, practice has been regulated somewhat by these opinions, because, as a man believes, he will practice. There has been a diversity of opinion, not only among dentists, on this question, but with physicians as well; many dentists and many physicians believe that little or nothing can be done in the way of special treatment with this object in view; others, probably from experience or theories formed, maintain that much may be done. I believe there is a rational ground in reference to this matter that is tenable, and ought to be followed up, perhaps, more closely than it is. It is a question to which all should give attention, the solution of which—if there is as much in it as many of us think—would result in immense benefit to those who are to be mothers, to themselves, and to their offspring as well. I have no doubt that in a great many instances there is deficiency in the functions of maternity during gestation, a deficiency of some sort, a deficiency either of function or of supply that results in a marked defect in the teeth—and this, perhaps, interests dentists more

than others—and in other tissues of the body as well as the teeth, and especially the bony structures of the body. This may occur from defective function, irrespective of supply, or the function may be good, or comparatively good, and yet a defective supply. In either case there will be imperfect tissue and structure formed. Now, it is true that the mother may be, in some respect or another, unable to take and properly prepare, in Nature's laboratory, the material necessary for her own support as well as for the support of her offspring—the child that is being formed. She may have one affection or another—a deficiency or shortness in function that renders it impossible for her organization to take the material presented and so utilize it; produce such changes upon it that it will be in a suitable state for the intended purpose. There is, doubtless, great variety in this respect; some may have a slight failure, others more marked—others more marked still—until, in many instances, a very great deficiency is present in the matter of digestion, assimilation and up-building of the material; there can be no question about that. We find mothers, many a time, in a condition where it is quite evident to the close observer and student of this question, that her offspring will necessarily be defective, puny and ill-developed in regard to bony structures, and probably other structures as well.

Now, what can be done for remedying this condition? The remedy here looks to general treatment to build up, to strengthen the system; to aid the digestive, nutritive, and assimilating functions; strengthen that as thoroughly as possible. Well, what does this mean—who is to do it; who is to recognize these conditions? Shall it be turned wholly over to the physician, and the dentist venture to make no suggestion to anybody about it? That would not seem to be a very rational course. The dentist necessarily deals with mothers during the time of gestation and lactation, and is it reasonable that he should know nothing about these things? If we conclude that this is the business of the physician, the mother ought to know from her physician what ought to be done in these respects—it is competent; it is not only proper, but it is a matter of right and duty that the dentist should know about these things—make them a matter of study,

so that he may be able to recognize the ill-condition that is present and be able to suggest, at least, to the physician what ought to be done.

Then, there is an embarrassment here sometimes; the dentist will go to the physician and give his views, make his explanation in regard to these things, and describe what he, from observation, experience and study has been thoroughly convinced is true, and has a substantial basis for; he presents this to the physician many times, and he simply "pooh-poohs," and says: "You can do nothing for them; we can do nothing more than see that her environment and food are in good condition." But, happily, there are many physicians who take different views of this question. Knowledge is increasing; ability to understand these things is enlarging, and we find very many physicians who will take great interest in any suggestion made by the dentist.

Then, in regard to the matter of the nutritive process. The supply of material for the hungry organism is a great question; one that every dentist ought to study; one, the emergency of which, he ought to be able meet. Then, less frequently will be found, perhaps, a deficiency of supply in the food; that is not of very frequent occurrence, the great difficulties here lie along the line I have suggested—a want of ability on the part of the mother to properly prepare, assimilate and build into the growing tissues, or the tissues to be sustained, the material necessary for their best make-up. That I take to be the great difficulty, far more extensive than a deficiency in the taking of the material. I presume that in a large proportion of the food of mothers there is usually enough of the material for bone-supply to feed the growing bones and to supply the nutrition of the mother, but somehow or other there is a deficiency in the make-up of the teeth in this respect. We do find teeth of children many a time that are soft and defective from the very beginning, from want of proper supply; the mother is likely to suffer as well as the child. Who does not know that the teeth of the mother during gestation and lactation are much more sensitive than formerly? They are more liable to decay, so far as the dentine is concerned, at least; they are softer, and a change is perceptible at such times in many instances.

The increased tendency to, and occurrence of, decay of the teeth, during these periods, is not due wholly to the changed condition of secretions of the mouth, although there is matter there for investigation and for study, but to the defective condition of the digestive function ; and it is due also to the deficient supply of material to be built into the structure at the time of its make-up. It is important, then, that this subject should have our special attention—it should not receive the “go-by” of the dentists.

Note a remark upon the third page of the paper: “Dentists, from the very nature of their work and practice, can not be expected to make accurate diagnoses nor to intelligently prescribe the proper quantity or quality of food for the great variety of physical conditions of the women of our day, but it is my opinion that we should not altogether ignore this matter, and that we should make ourselves as familiar with its general bearing as possible.” Make ourselves familiar with the general condition and then follow the dictates of knowledge attained in that way, and we will have accomplished all that will be required. But he states, in the first of this paragraph, “it is not to be expected that the dentist will be able to make accurate diagnoses.” Why not? Why isn’t he capable of understanding these things? Simply because his attention has not been specially directed to these things, as has that of the physician. It is true that many dentists do not have a very full appreciation of this question ; some do understand it quite well. The dentist can render valuable aid to the physician in this matter, and he can determine results with a considerable degree of accuracy. If he can gain knowledge that will be helpful to the physician, why not give it first-handed to his patients? You say, “The dentist can not do that.” That is true of some, but many dentists can ; those of large experience, extended observation and study, and familiarity with the subject, it is just as competent for him to suggest a certain course of living or a certain course of treatment, perhaps, as for the physician, so far as it pertains to the health of the teeth of the mother and the child. Many say, “Well, this is a delicate subject ; I can not approach my patients on this subject,

they will not take it kindly." That is a mistake ; every intelligent mother, or prospective mother (with one who fully understands the subject ; with one who can give her information that will result in her good and the benefit of her offspring) will take the most intense interest in the questions, and will receive everything looking in that direction with the greatest pleasure. All persons are not alike competent to present this subject ; of course a younger dentist would ordinarily hesitate to present this subject to many of his patients, possibly to any of them. He says, "It is too delicate a question for me to deal with." The probability is that in the great majority of such cases that delicacy arises from the fact that he recognizes his own incompetency in reference to the matter. Usually, the man who knows the ground upon which he stands, and knows that he is competent to give advice to the patients that will be of great benefit to them, will find no difficulty in finding language or in finding means of conveying his information to those persons, and very rarely, indeed, will it ever be received other than with the greatest approval and delight. Every dentist who has been in practice for a long time, and who has given attention to this subject, will verify what I say. I know that a great many patients think that about all a dentist is expected to do is to fill decayed teeth and insert artificial teeth, to extract diseased teeth, etc., but fortunately, those entertaining such views are becoming less and less all the while, and it is so because the dentists are becoming more and more intelligent themselves, and are able to bring their patients up in this matter. Then let us give attention to this matter. It is not often that the dentist needs to refuse to see the physician, but will make his assistance serviceable so far as possible, and the younger members of the profession, especially, should do this. The older members will at once recognize the difficulties ; recognize the things that ought to be done, and if they have the proper spirit they will do what they can. If there is any particular in which they think matters can be improved by consultation with others (either a dentist or physician), let that consultation be had ; let the subject be discussed, and if it is better that the physician of the patient should have charge, with the suggestions

of the dentist, let that course be pursued. How often is it we find mothers suffering greatly in various ways, and, it may be, with the parts adjacent to the teeth, resulting because of the conditions brought about by the maternal functions! How often are the teeth of the mother decayed and exceedingly sensitive; she can not masticate her food; the food is bolted, perhaps, or the food that is best for her is not taken. Then let us, as dentists, do whatever we can in this direction to be helpful to those who are suffering; this matter of improvement of the race is a great question, it has many branches, and this is not one of the least of those branches.

“It is high time that more notice was given to the eruption of the teeth in the regular order and harmonious position.” Not only can the dentist render aid to the physician in this matter, as suggested, but he should, at least, be able to determine the comparative value of the different treatments, different methods of treatment in the results secured, and be able to fairly compare their value. In reference to irregularity of the teeth—that is another line of practice that ought to receive special attention. It is important that the teeth and all bony structures of the growing child be well developed, and have the proper supply of nutritive material in order that the teeth may be not only structurally good, but that they may have the proper arrangement in the arch. There is, as the paper says, usually no difficulty in this respect with the temporary teeth. There is, however, oftentimes very defective temporary teeth as the result of rickets and kindred affections. This, however, does not make the temporary teeth usually irregular in position or standing, but oftentimes teeth are missing because of this, and occasionally out of proper position. I remember a case of a little boy whose temporary teeth were scattered as though they had been sown broadcast. It is important to give attention to the period of the growth of the temporary teeth for the sake of the permanent teeth, because if the temporary teeth are defective in any way there is the greater probability that the permanent teeth will be ill-arranged. It is, perhaps, of less consequence to the temporary teeth because they are short-lived, but

it is of great importance to the second or permanent set. This, in the apprehension of some, might lessen the regard or esteem which they would have for the temporary teeth. Magnify that as much as you can—let the thought be entertained that the temporary teeth are important, and, in a variety of ways, they are necessary in mastication. They serve a valuable purpose in promoting the growth and proper development of the parts in which they stand for the sake of the permanent teeth. In these respects the temporary teeth should not be lightly esteemed. This want of appreciation of the value of temporary teeth is expressed in this way by mother and children: “Oh, that is a temporary tooth,” and so they give it little or no attention. Even the dentist, too often, yields to that kind of suggestion rather than correct it, when, by the treatment pursued under such circumstances, many times, the most serious consequences occur to the permanent teeth. We can hardly make a comparison as to the relative value of the permanent and temporary teeth. Of course, the permanent teeth serve much longer than the first, but the first teeth are important, and we ought not to cast a shadow of doubt over our opinion as to their importance.

The paper contains the suggestion that the free administration of bone-making material, and especially the calcareous, is likely to promote or induce an abnormal growth of the bony tissue throughout the body and so make difficult parturition. I apprehend that there need be no anxiety in regard to this question. Various authors make the statement that only so much of this material administered to the mother for this purpose as is needed will be taken, digested and built into the structure; that any excess passes off as any other excess of food will. We know that a larger amount of food may be taken than is needed, altogether more than ought to be, but it does not follow that it will all be assimilated, only the needed amount to satisfy the hunger of the parts, or to satisfy the demand for the support or up-building of the tissues will be utilized; any excess will be rejected. So, there need be no fear entertained in regard to this matter in the administration of those preparations, and, besides, we should re-

member that the growth of the body, the form it takes, the size of it, etc., is according to a pre-arranged plan.

It is fully recognized in the medical profession that the use of bone-phosphates, or bone-making material, is very beneficial in certain conditions and in certain diseases, and so they are largely administered. Who does not know of the great rush there was some years ago for hypophosphites for consumption, and for various other affections? More than forty years ago experiments were made in the administration of lime salts to children, and to mothers for defective teeth, and it was observed then that very great benefit was derived from the administration of even this material in the crude form in which it was then used. From that time to this there have been many preparations made for the purpose of rendering this material more easily used by patients. I never saw a more pronounced result in the administration of lime phosphates than was observed in a treatment by the late Dr. Watt, forty-five years ago, in the case of a mother who had lost nearly all her teeth. Her first two children had very defective teeth; the teeth erupted with difficulty; when they came through they decayed rapidly, the temporaries and the permanent as well. During the time of gestation of the third child bone-phosphate was freely administered to the mother in a crude form, of course, because the good preparations we have now were not then extant. The third child erupted its temporary teeth promptly; they were good. I watched those teeth until they were shed; scarcely any of them decayed; the permanent teeth came through without difficulty and in regular form. Another child after that came, and the mother was subjected to the same treatment during the time of gestation and lactation. The fourth child had as good set of teeth as the third. The first two children lost their teeth, many of them at least, before the time of maturity; they began early to decay. This experience was sufficient to warrant further procedure of this kind, and from that day to this that kind of treatment, in the hands of a few at least, has been followed up with as good results as any we obtain in ordinary practice, not always, of course, with the same results, but in ordinary persons of good constitu-

tion, and where they observe right hygienic living and have good nutrition there will be benefit derived.

In the discussion of Dr. Hoff's paper Dr. Cleland advocated the use of coarse foods, such as oat-meal and milk (not cream), and bread and milk for children, also plenty of out-door exercise and fresh air.

Points of Interest in the Care of Children's Teeth.

[Continued from November Number, page 548.]

DISCUSSION.

DR. GEO. L. FIELD: There is probably no more important duty the dentist is called upon to perform, or one more perplexing and trying, than that of caring for the teeth of children. Here it is that we are first called upon to meet and combat an enemy to peace and happiness of future years, whose chief and strongest ally is the little one brought to us for our professional care and assistance, to meet the approaching aches and pains of a not far-distant future. Coming to us, as they do, with trembling footsteps and cheeks bedewed with tears; looked upon by them, as we are, as the very personification of all that is evil and to be avoided, the question arises: What are we to do, and how are we to do it? Heroic measures certainly will not be most conducive to the end in view, and yet a certain amount of firmness is absolutely necessary, and more or less pain must accompany our efforts or we shall make a most ignominious failure to attain the end sought. We wish to impress upon the mind of our little patient the fact that we are in an effort to do that which shall be of not only temporary, but of future benefit; that we wish to be held in the light of a friend and not of an enemy. But the pain that we necessarily inflict seems to dissipate all hope in our favor. Early impressions are hard to eradicate, and seeds sown by the experiences of a child in the dental chair are very apt to bring forth fruit that, in after life, shall be the source of much trouble when future dental operations are necessary. Con-

sequently, I believe it to be politic to be as gentle and careful in our first and early experiences with children as it is possible to be. Nevertheless, the fact confronts us that we have a duty to perform; and the question confronts us as to the best way to perform it? In the filling of the deciduous teeth, much depends upon the age of the child and the length of time that is necessary to preserve those teeth. My experience tells me that in those teeth which it is necessary to retain in the mouth but a short time longer, where the arch has been well expanded, and made ready for the permanent dentures; where absorption of the roots has become nearly completed. Little need be done, and that little need not, of a necessity, be very perfectly done. The child should be as gently and carefully handled as circumstances will permit. *But*, when decay in the temporary teeth begins *early*—and it may be years, possibly, before the permanent teeth may be expected to take their place—then the situation is entirely changed; and to be of any great benefit, our work must be of a more permanent nature, and the question arises: *How shall we make it so?* How thorough shall we be expected to prepare our cavities, and with what *materials* shall we fill them? The deciduous teeth, as we all know, are not as fully calcified and mineral in their formation as those that are to follow, consequently much more readily yield to those agents that cause decay, and painfully respond to the touch of the excavator and the burr. Still the fact presents itself, that a certain amount of excavating and preparation is imperative, or our labors will be of little use. And here I would suggest the greatest care and gentleness on the part of the operator. Let thoroughness be tempered with kindness, gentleness and discretion. Children are generally easily influenced; talk to them kindly and soothingly during the time that they are in your chair; divert, as much as possible, their thoughts from the ordeal through which they are passing, and make your sittings *short*. But make your work as thorough as possible in preparation of cavities as circumstances will permit. The filling materials that may be used are many, and the operator should be governed in their selection by the case in hand. Gold I should never use, for two reasons: One, that it is

unnecessarily expensive; and the other, that the time expended for its proper manipulation is very trying to your little patient and returns no adequate results. When the rubber dam can be readily used, use it; the following results will be more satisfactory. The various preparations of gutta-percha that are now in the market in many cases are all-sufficient, though some of them, in my hands, have proved valueless. The so-called "Hill's Stopping," that was in the market some years since, was, I think, the best of its kind that I have ever used. The oxyphosphates as now prepared for our use are admirably adapted to many cases. But, when I think that the case demands a filling of more permanency of character, I use amalgam, often first lining the walls of the cavity with either a thin solution of gutta-percha or of the oxyphosphate of zinc. Now, in this suggestion, I feel that I may meet with very strong opposition on the part of some. But that fact makes not the slightest difference with me. I am asked to discuss a certain portion of the paper just read before you, and though my remarks are brief, still they are such as are the results of my former experiences. There was a time, which you and I both remember, when the fact that a man admitted that he used amalgam in any form, or in any way, was enough to damn him. That time, I think, has passed away. Amalgam, if properly prepared and properly used, may be, and has been, of much permanent benefit to many in the past, and may be to many in the future. And in its use in children's teeth, where quickness of operation and freedom from pain is a desideratum, I think amalgam has its place; and I consider it more permanent and lasting in many cases than any other agents we can use. Now, let it be understood that I am speaking now more particularly of deciduous, or children's teeth; I am speaking of past experiences as an operator, and as to the results of such experiences. The question before the house as I understand it, is: *How best to bend our efforts* for the preservation of children's teeth? Deciduous in the first place, which shall have for its end and aim the preservation finally of the permanent. The thoughts expressed by the writer of the paper, as a whole, meet my hearty approbation, but to discuss it at length would be, it seems to me, an almost endless task.

DISCUSSED BY W. H. JACKSON, D.D.S.

At the opening of this section of Dr. Hoff's paper, he says: "It seems to me that it is high time more notice was given to the eruption of the teeth in a regular order and harmonious position."

To consider the opening statement on this subject we are forced to go back beyond the appearance of the tooth, and this takes us into the realm of life-force.

Life is that mysterious power which produces the phenomena that distinguish living organisms from inanimate things.

The laws which govern life-growth are little understood, consequently what will be the product of two different temperaments coming together can not be foretold. Yet, by bringing together persons with strong physical bodies the offspring is more liable to receive a strong physical body.

During the slavery period in the South masters recognized this truth and selected males of great physical strength that the offspring might be of a like nature, hence of greater value on the market. But, as far as my knowledge extends, there has been no scientific work done in reference to the development of the teeth and maxillæ. It might be possible to develop almost any characteristic in the human family, as has been done in lower orders, were it possible to govern the mating of the sexes on a truly scientific basis to produce the object desired.

Some good work has been done in this line, in several directions on the horse for racing, roadsters and draught, on the bos for milk and beef, on the dog for his varied qualities.

I hardly think the doctor intended to enter the subject of heredity, however, as it will be next to impossible to remedy the present evil in that line, as there is no way of inducing people to submit to a scientific body in selecting a wife or husband, so we will deal with the teeth as they make their appearance. Then, if they are out of the normal position it is for us to correct the abnormality, and, so far as possible, produce perfect harmony for use and beauty.

The temporary teeth are so seldom abnormal in position that

it is almost wasted time to consider them, for should there be conditions which we might deem wise to correct, the manipulation would be practically the same as with the permanent teeth.

Conservation of energy is of the utmost importance to physical life. So the questions arise in our minds—

First: At what time or period of dentition can we, with the least disturbance to the physical system, correct an abnormality?

Second: At what time or period of dentition may be obtained the best results?

Third: Contra indications, etc.

Fourth: What method of manipulation shall we follow to accomplish the desired end?

I will confine my remarks principally to the first two of these questions, merely touching the third and fourth.

In considering the first question we find that the younger the patient the less resistant are the tissues that we have to deal with. The processes which retain the teeth in position have not become so densely ossified, and absorption takes place much more rapidly from the greater vascularity, thus lessening the intensity of the irritation, and diminishing the length of time required to obtain the desired correction.

Matured tissues have habits of form which are very persistent, and so much so are they that even though you may seriously mangle a part, it will frequently return to the original shape and usefulness, and unless a part be entirely destroyed, there will be this tendency to return, owing, undoubtedly, to the life-force that directs.

While in the growing or formative period the habit has not been established and we are able to establish the habit of a correction or a deformity, so that in later years there will be the tendency to return to the habit you have established.

Corrective surgery in other lines has taken cognizance of these conditions, and are, many times, able to correct grave faults and bring about harmonious positions of the part, thereby making it more useful to the patient.

I am greatly surprised that our profession has not been impressed with the need of immediate manipulation for the correc-

tion of any deformity of the mouth and associate parts as soon as they may become apparent.

As a rule, it requires a very minute amount of directive power, while the tooth is growing, to bring it to its proper position, and a very small amount of irritation is produced if the appliance is made and adjusted properly.

On the other hand, should you leave the correction till later in life, when the tissues are fully formed, growth has practically ceased, and the habits and characteristics of the parts fully determined, much irritation and nervous tension will be produced, and has to be continued a much longer time to obtain a desired result in position.

Two patients, sisters, both extremely nervous, of like temperament, one eleven, the other nineteen years of age, will illustrate this plainly.

The younger patient's teeth were moved into position, and she was discharged between six and seven weeks, not even requiring any appliance to retain her teeth in the corrected position, while with the older, it took over four months to obtain as good results in position, and she is still, after eighteen months, obliged to wear an appliance to prevent them from returning to their original position.

Were these the only cases having this result I would not cite them as an argument in this discussion, but I find that it is, to a more or less modified extent, the rule rather than the exception, and this deferment in operation leads to much of the dissatisfaction to the dentist as well as the patient in this field of our practice.

Many of my most successful results have been when the operation was performed before the teeth had attained their growth.

So soon as a tooth begins to erupt in an abnormal position an appliance should be adjusted to direct it to its proper position, and the farther growth of the root will tend to strengthen and retain the tooth in the acquired position.

During the growth of the teeth and maxilla the processes are in an active state of development and readily follow up the moving tooth or teeth making it or them more solid.

In moving the teeth through fully-formed processes there is a tendency to produce cicatricial tissue which has a tendency to contract and return to its old position, but in the active or developmental stage there is little tendency to the cicatricial and much toward the growth of normal tissue.

We may be able to guide and direct the development into more symmetrical forms or useful positions with comparatively little trouble, but when the formative or developing period is passed and the tissues have assumed their permanent form, it, many times, requires an almost endless amount of patience, as well as misery, to change it, and even when changed it is liable to return to its old position and become like "The man who returned and found his room swept and garnished. Then goeth he, and taketh to him seven other spirits more wicked than himself; and they enter in and dwell there. And the last state of that man is worse than the first."

An illustration in this line may be of interest: A lady, aged twenty-five, had worn for four years an appliance to hold in position a left superior lateral incisor. By an accident the appliance was left out a week, and the tooth returned to its old position, articulating back of the lower teeth. From wearing the appliance large cavities came in the corrected and adjoining teeth although the patient said the appliance was removed twice a day and the teeth thoroughly cleaned.

The effect on the system may be slight or serious.

First: According to the nature and extent of the operation.

Second: The health and physical condition of the patient.

Third: The extreme irritability of the nervous system.

Due cognizance of all these conditions should be taken that we may modify our manipulations or withhold them altogether, as the necessity of the case may require.

I find that recuperation is much more rapid in the young, and seldom leaves any depressing after-effects on the child, while with the adult, depressing conditions often follow, and, it is well to bear this in mind, for though we may be able to correct a defect we might produce depressing effects from which the patient might not be able to recover.

The more simple an appliance that will accomplish the desired result, the better will the work be done. As a rule, appliances are too complex in mechanism for comfort and require too frequent manipulation to keep the forces operating, thus adding greatly to the discomfort of the patient, and oftentimes even forcing them to give up the operation.

DR. PORTER: There was a matter mentioned in Dr. Jackson's discussion which interested me very much, and which I would like to mention, and I would like something said about it more than I will say, and that is the correction of the teeth at different ages. There is no question, of course; and we all appreciate the fact that it is very much more easy to correct any irregularity early in life in children, and the sooner we can get at it the better. But there is one difficulty which I have met, and no doubt all of you have, and that is the fact that when deciduous teeth have been extracted too soon, where they have been decayed and extracted before they ought to have been, and before the other teeth have nearly erupted; for instance, in a case where the anterior part of the superior maxillary is very prominent, and the first molars—the deciduous molars—have been extracted, it seems to me there is a difficulty that we can not overcome. It is very difficult in that case, where the incisors are very irregular, to do very much with them, in my opinion, until after the bicuspid has been erupted. And in such cases I advise the patient to wait until the bicuspid has been erupted, until they are from twelve to fourteen years of age, and I can not see how we can commence any operations before that time.

DR. TAFT: There was a remark dropped incidentally by Dr. Cleland which seemed to call for a suggestion further, and that is this, that—as I thought I stated two or three times—I was not aiming to cover the entire ground; I did not aim to give any special formulas; I was discussing principles; I regard that as more important than special formulas. It is a very important matter that we should understand the principles upon which our practice is to be based, and from which it will grow, if we understand the principles well.

I fully concur in what he said in regard to the use of foods of certain kinds—all very good; everything he said was true and

to the point; it was specific rather than general—had reference to particular uses rather than to principles, both of which is necessary. There seems to be no special diversity of opinion in regard to questions that were contained in the paper. The paper is happily expressed in that respect, and every branch and every line ought to have its due consideration, but I was requested to confine myself to a particular line of thought and I only endeavored to do that as best I could. Other parts of the paper, of course, have been well discussed and were exceedingly interesting.

DR. HALL, of Ann Arbor: In regard to special treatment, I would like to call attention to the valuable use of aid to be derived from the use of nitrate of silver. Dr. Field spoke of filling with different materials, and he also spoke of the great necessity of saving the younger children's teeth until they could be removed by natural processes. With very young patients we have the most difficulty, even in handling them; and their teeth are small, and the gums cover the teeth so fully that we can not put a rubber dam on and treat them properly, and I would like to call the attention of the members to the use of nitrate of silver—a good many know all about it now, some, perhaps, do not—covering the cavities, the decayed portions, with nitrate of silver. The saliva is usually enough to dissolve the crystals a little, and they will find that the decay will cease at that point, and although it blackens the teeth for a time, it is much better to preserve them that much, even if we can not fill and contour them properly.

The meeting here adjourned.

Hallucination and Anæsthetics.

In the case of *State vs. Perry*, the Supreme Court of Appeals of West Virginia held that expert medical testimony should determine whether or not hallucination, while under the influence of an anæsthetic, was responsible for criminal charges preferred against a physician by a female patient. If the probability of such hallucination is established and the charges rest entirely on uncorroborated testimony of the patient, the jury, it held, should acquit the accused.

MONTHLY DIGEST.

Reported for the DENTAL REGISTER by Mrs. J. M. Walker-

PLASTIC.*

DR. WM. B. AMES, in a paper read before the Chicago Dental Society, considered the oxyphosphates as materials worthy of the best efforts in conscientious and thorough work.

Experience has convinced him that by a proper selection of materials a good cement filling very rarely loses any of its substance when protected from friction, and that he can practice dentistry conscientiously by trusting to materials of this nature in a very liberal percentage of cases, viz.: in the teeth of all children, and of most young persons fairly-well matured, for young mothers, or young wives about to become mothers and for all small cavities on surfaces difficult of access. For large cavities requiring bold contour he inserted gold or porcelain inlays, set with oxyphosphate.

For large cavities on the anterior or posterior surfaces of second or third molars, and also for shallow grooves about the gum margins of the posterior teeth, he uses oxyphosphate of copper because of its ready adhesion to a plane surface, even if a trace of moisture is present.

He considers that the presence of soluble alkaline phosphates the cause, detracting most from the integrity of cements, the absence of alkaline adulteration of the phosphoric acid not only lending integrity to the mass but obviating the objectionable stickiness and leathery consistency of some cements, causing failure even with most conscientious effort to obtain the greatest good possible from the material.

The oxyphosphates which he has found most free from the soluble alkaline phosphates as Eislefeld's, globe, concrete, Harvard, Poulson's, Dirigo and the two furnished by Justi.

He advises the use of a matrix wherever possible, and keep-

* Dental Review, March, 1895.

ing the material protected from the saliva as long as the exigencies of the case will permit.

The paper was discussed at some length, the profession being congratulated by Dr. E. Noyes upon the definite and important progress made in the manufacture of plastic cements. The solution of the questions of reliability and durability is all that is needed to revolutionize the use of filling materials as regards human teeth.

DR. FERNANDEZ secures the exact shade required in a cement by intermixing finely-pulverized jeweler's enamel, also burnishing this powder into the surface of a cement, filling before it is perfectly hard, prolonging insolubility. He uses gold matrices and gilt or nickel-plated spatulas, exclusively, in cement work.

DR. J. W. WASSAL burnishes the surface of oxyphosphate fillings, thereby giving a harder surface than by any other manipulation.

DR. M. G. JEMISON, in a paper read before the Minneapolis Dental Society,* reviews the records of history along the line of

ANÆSTHESIA,

With the *modus-operandi* of the agents most generally employed, including hypnotism and rapid breathing.

In the discussion Dr. W. X. Sudduth spoke of the value of hypnotic suggestions in connection with drug anæsthesia, the psychical aspect of the question being, to his mind, even more important than the physiological effect or the potentiality of the drug, the personality of the operator playing a very important part.

DR. O. J. OAKLEY gave a resume of the history of Anæsthesia before the Hayden Dental Society. Dr. "J. W. R.," in the same journal† relates an incident showing the potency of cocaine, and the importance of having all medicine vials, both bottles and stoppers, carefully labeled. In the case mentioned a fistulous abscess was under treatment. At the first sitting H_2O_2 , followed by an essential oil, was injected through the tooth and

* Dental Review, March, 1895.

† Dental Review, April, 1895.

fistula. At the next sitting the injection was repeated, but no effervescence following the supposed $H_2 O_2$ it was found that cocaine 4 percent had been used, the similar vials being labeled only on the stopper the latter having been accidentally exchanged. The result was extensive inflammation and necrosis of a large plate of alveolar process. Though special pains were taken antiseptically, in removing the sequestrum, etc., the suture continued to slough for a considerable time, the vitality of the tissues being lowered by the cocaine. There were no toxic symptoms.

DR. O. A. WEISS (Minneapolis Dental Society)* reviewed briefly the various agents employed for producing

LOCAL ANÆSTHESIA,

as refrigeration, electricity, and various drugs, especially cocaine, of which the paper is an exposition—considering the dose, the preparation, and the correctives. The infiltration method of Dr. Cholewa (Berlin) is given, as follows: A one-tenth-percent solution of cocaine in from five to ten parts of a two-tenths-percent solution of common salt is used, more than twenty fluid ounces being required for one grain of cocaine. It is used intracutaneously instead of subcutaneously. Anæsthesia is produced by infiltration, the sodium chloride assisting in the permeation of the tissues, so little cocaine being used that there is no risk of dangerous absorption. Doctor Weiss considers the physiological action of cocaine, the purposes for which it may be used, how to use it, upon whom to use it, and the antidotes and resuscitants.

DR. ROBERT MARSTON (England)† discusses the question, "Is the Anæsthesia Caused by Nitrous Oxid Merely Venous Coma?" reaching the conclusion that the process is essentially one of asphyxiation, the intermediate stage accepted as anæsthesia being simply a state of venous or asphyxial coma caused by the toxication of venous blood on the nervous centers. The physiological effects are incompatible with the supposition that it is an anæsthetic; appearances all distinguish it as a negative asphyxiant—an inert atmosphere which serves only to fill the dilating lungs during respiratory efforts, enabling the mechanical

* Dental Review, March, 1895.

† Items of interests, March-April, 1895.

performance of the respiratory mechanism during the temporary cessation of pulmonary chemical action. The absence of oxygen causes an accumulation of natural products, whose eagerness for the missing element increases with the increasing carbonic plethora, the toxic power of which, on the nerves, while obtunding their sensibility, increases their involuntary motor impulses and converges the vital energies to the point of assimilating an element which nature supplies abundantly on every side.

To prolong the effects of nitrous oxid, he would first administer a few whiffs of chloroform—not sufficient to produce a perceptible effect, but with the result of prolonging the anæsthetic period.

DR. P. ROSENBERG described, before the Medical Society,* a new method of

COMBINED ANÆSTHESIA,

by which the lethal action of chloroform on the heart is entirely prevented. The mucous membrane of the nose is to be previously anesthetized by a spray of cocaine, preventing the reflex disturbance which is transmitted to the nerves, paralyzing the heart and respiration. Cocaine is an antidote to chloroform. The anæsthesia is more readily induced, and is free from after-effects, the patients waking rapidly with none of the usual discomforts.

ETHYL BROMIDE AS A GENERAL ANÆSTHETIC IN DENTAL PRACTICE.†

GEORGE MORGENTHAU, M. D., shows the advantages which ethyl bromide possesses over nitrous oxide gas, ether and chloroform as an anæsthetic agent, in that it does not produce any change in the red blood corpuscles, causes no after-sickness, has no unpleasant odor, creates no irritation of the mucous membrane, is rapidly eliminated from the body by the lungs. Recovery is very rapid, the patient being able to walk alone after a few moments, and to leave the office within from fifteen to thirty minutes, feeling bright and cheerful. He commends it as worthy of trial in suitable cases, from its manifold and obvious advantages.

* Dental Review, March, 1895.

† Dental Review, March, 1895.

CONSOLIDATION OF IMPLANTED TEETH.

DR. OSCAR ARNOLD (Paris),* contributes the following points toward the solution of the question of the mode of retention of implanted teeth. Having come into possession of an inferior maxilla having "a second milk molar ankylosed between the first permanent molar and the first bicuspid," he sawed the maxilla in two in search for the missing second bicuspid. He found no trace of this tooth. All over the surface of the root of the ankylosed deciduous tooth the pericementum had disappeared, the cementum was destroyed in large part and substituted by an osseous proliferation coming from the alveolar wall, the pulp chamber being filled with secondary dentine. Sections made for microscopic study show such "intimate connection between cementum and osseous tissue that it is impossible to say where bone begins and the root ends."

To explain the pathological process he thinks that the deciduous tooth not being shed became an obstacle to the normal development of the bicuspid, which, being unable to force its way through the maxilla, created an irritation and over-excitement of activity in that region, causing absorption both of the developing tooth and of part of the roots of the milk-tooth. The cause of the irritation being thus removed, compact bone-tissue filled the hollow left by the second bicuspid and the bays on the surfaces of the roots of the deciduous molar. This he concludes must be the process that occurs between the bone and the root of an implanted tooth, the latter acting as a foreign body irritating the bone and producing an osteitis, with formation of lymph-cells which form an embryonal membrane throughout the periphery of the alveolus. That these embryonal cells advance toward the root until they cover it, then decalcification and erosion of the root begin, giant cells with acid reaction forming little bays on the surface of the root; conditions being good (the implanted tooth firmly fixed in position) resorption stops, the embryonal tissue is vascularized, calcic deposits are formed, until finally the root and alveolar walls are, as it were, soldered together.

As a practical deduction, DR. AMOEDO decalcifies the cemen-

* Cosmos, March, 1895.

tum of a tooth to be implanted to the depth of half a millimeter, and ligates it to secure immobility.*

EX-SECTION OF THE INFERIOR DENTAL NERVE.

DR. T. W. BROPHY, in a paper read before the Chicago Dental Society,† describes his new method as follows: With a long, flexible, graduated drill, similar to the Gates Dental Canal Drill; the inferior canal is entered at its mental foramen, and the drill carried backward to the inferior dental foramen, thoroughly removing the contents of the canal, the drill being sufficiently flexible to follow the upward curve of the canal; if necessary, the drill may be followed by a broach of large form modeled after the Donaldson Canal Broach, to remove any remnants of nerve tissue. The after-treatment is simply anti-septic cleanliness.

SELECTIONS.

Notes on Tuberculosis—Avenues of Invasion.

BY JAS. T. WHITTAKER, M.D., CINCINNATI.

Tuberculosis of the Alveolar Processes. Tuberculosis of the alveolar processes has been known for twenty-five years, and thirty-seven cases have been reported up to the present time. Zaudy makes a perfect description of the condition, emphasizing the fact that the teeth, especially when affected with caries, constitute an orifice of entrance for the tubercle bacillus. The wounds left after the extraction of teeth are also subject to infection by sputum containing the bacillus.

It would appear that tuberculosis of the alveolar processes may be primary—it never remains long isolated, but extends to the vicinity. Points of predilection may not be determined. The disease occurs most frequently between fifteen and fifty years, and in men oftener than in women. Any distinction be-

* Cosmos, Sept., 1895.

† Dental Review, March, 1895.

tween lupus and tuberculous infection is not practicable; the lighter, more superficial forms are usually ascribed to lupus, while the deeper, graver forms, which lead to necrosis of bone, are ascribed to tuberculosis.

The condition is scarcely to be confounded with carcinoma, perhaps more frequently with syphilis. The literature shows that in tuberculosis of the alveolar processes there are numerous cases in which the bacillus remains undemonstrable, notwithstanding every study. In the case reported by the author, the bacillus could not be disclosed in the granulation tissue, notwithstanding the fact that miliary tubercles and giant cells, with nuclei at the borders, could be readily demonstrated.

French Physicians on the Drink Problem.

The traditional belief that France is a country of great sobriety, compared with other nations, is not correct. The French Director of Public Instruction has recently given some very startling figures, which are not denied. To find the amount of spirits used in absolute alcohol, a comparison was made with other wine and beer-drinking countries, and it was assumed that all beer contained an average of 3 percent of alcohol, wine 10 percent, and cider 9 percent. Then adding up the consumption of alcohol under the various names of wine, cider, beer, brandy and other spirits, and dividing by the population, it was found that every person in France consumed thirteen quarts of absolute alcohol a year.

Comparing this with other nations, this was found to be the highest rate. Switzerland came next, with ten quarts for each person per annum. Then followed Germany, England, Norway, Sweden, Canada, Italy and Spain. The amount of spirits used has been increasing in France and Belgium, and decreasing in Scandinavia, Canada and Great Britain.

The following appeal has been scattered broadcast by the Blue Cross Society:

“Citizens! Two doctors of Paris, in a recent work, have formulated these sinister conclusions: (1) Alcohol is a poison;

(2) France offers to us the desolating spectacle of a nation literally rushing toward decay through alcohol. Patriots! A revolution develops itself. Do you wish a new tyrant to reign over us? In all parts of the country cafes and taverns are multiplied; it is the multiplication of suicides, of crimes, of insanity. Alcoholism diminishes the birth-rate and increases the death-rate; alcoholism enfeebles, intellectually and morally, the leading classes, while it increases the army of the helpless, the poor, and the discontented; alcoholism costs our country yearly a thousand million francs; alcoholism, therefore, is the ruin of the public health and endangers the public security. Is it not enough, Frenchmen? Let us unite for the suppression of the demand for alcohol. Let each give up personally, radically, courageously, the use of spirituous liquors. Thou, who will go to shed thy blood at the frontier, art thou ready for sacrifices more obscure but more efficacious? Thou, who will renounce all to save France, wilt thou renounce, in order to deliver her, thy small glass, thy appetizer, thy spoonful of brandy? Down with alcohol! That is to say, long live France!"

The question of what can be done has been brought before the Academy of Medicine several times during the past year in very elaborate papers. The Chamber of Deputies has discussed the situation and listened to many plans. The fact most interesting to us is that a large number of eminent medical men have taken up this problem, and are agitating the subject in every possible way. Two societies, which correspond very nearly to our temperance organization, are officered largely by medical men, who are fearless in their discussions and condemnations of the use of alcohol.

Evidently, a great evolution is going on in this old wine-raising and wine-drinking country.—*Cincinnati Lancet-Clinic*.

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